## SEQUENCE LISTING

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HOLM, Jens
IPSEN, Henrik
LARSEN, Jorgen N.
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Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Gly Asp Gly Gly Ser 105

Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val 115 120 125

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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe 50 55 60

Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys 65 70 75 80

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Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val

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Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val 115 120

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Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu
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Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Gln Gly Ile
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Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
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Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Gln Gly Ile
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Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
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Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu
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Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Glu Gly Ile
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Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
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Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg
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Arg Gln Met Arg Thr Val Thr Thr Ile Arg Met Gln Gly Gly Cys Gly
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Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu
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gaa tac atc caa cat aat ggt gtc gtc caa gaa agc tac tat cga tac
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                                            140
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576

624

666

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Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu
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Cys Ala Asn Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile
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Val Ala Glu Glu Gln Ser Cys Arg Pro Asn Ala Gln Arg Phe Gly
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Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly 165 170 175

Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Phe 180 185 190

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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile Gly Arg Gly
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aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
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Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
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gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa
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Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
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gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu 65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile Gly Arg Gly
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
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                                                 45
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
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gtt ccc ggt atc gat cca aat gca tgc cat tat atg aac tgt cca ttg
                                                                      240
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
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gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa
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Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln

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aaa Lys	cca Pro	ttc Phe 35	caa Gln	ttg Leu	gaa Glu	gct Ala	tta Leu 40	ttc Phe	gaa Glu	gcc Ala	aat Asn	caa Gln 45	aac Asn	tca Ser	aaa Lys	144
aca Thr	gct Ala 50	aaa Lys	att Ile	gaa Glu	atc Ile	aaa Lys 55	gct Ala	tca Ser	atc Ile	gat Asp	ggt Gly 60	tta Leu	agc Ser	gtt Val	gat Asp	192
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gat Asp	aat Asn	ggt Gly 115	gtt Val	ttg Leu	gcc Ala	tgt Cys	gct Ala 120	att Ile	gct Ala	act Thr	cat His	gct Ala 125	aaa Lys	atc Ile	cag Gln	384
gat Asp																387
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu

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Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile Gly Arg Gly
aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
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gtt ccc ggt atc gat cca aat gca tgc cat tat atg aac tgt cca ttg
                                                                       240
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
65
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gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa
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Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt
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Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
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gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag
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Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile Gly Arg Gly
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aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
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aca gct aaa att gaa atc aaa gct tca atc gat ggt tta agc gtt gat
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
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gtt ccc ggt atc gat cca aat gca tgc cat tat atg aac tgt cca ttg
                                                                      240
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
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                    70
                                                             80
gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa
                                                                      288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt
                                                                      336
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
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                                                                       96
Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
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aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
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gtt ccc Val Pro 65	ggt Gly	atc Ile	gat Asp	cca Pro 70	aat Asn	gca Ala	tgc Cys	aac Asn	tat Tyr 75	atg Met	aaa Lys	tgt Cys	cca Pro	ttg Leu 80	240
gtt aac Val Asn	gga Gly	caa Gln	caa Gln 85	tat Tyr	gat Asp	att Ile	aaa Lys	tat Tyr 90	aca Thr	tgg Trp	aat Asn	gtt Val	cca Pro 95	aaa Lys	288
att gca Ile Ala	cca Pro	aac Asn 100	tct Ser	gaa Glu	aat Asn	gtt Val	gtc Val 105	gtc Val	act Thr	gtt Val	aaa Lys	gtt Val 110	ttg Leu	ggt Gly	336
gat aat Asp Asn	ggt Gly 115	gtt Val	ttg Leu	gcc Ala	tgt Cys	gct Ala 120	att Ile	gct Ala	act Thr	cat His	gct Ala 125	aaa Lys	atc Ile	cgc Arg	384
gat Asp															387
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala

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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

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Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
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		ca tgc aac tat at a Cys Asn Tyr Me 75	et Lys Cys Pro I	
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala 35 40 Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly 100 105 Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln 115 120 125 Asp <210> 51 <211> 387 <212> DNA <213> Dermatophagoides pteronyssinus <220> <221> CDS <222> (1)..(387) <223> <220> <221> mutation <222> (43)..(45) <223> <220> <221> mutation <222> (70)..(72) <223> <220> <221> mutation

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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
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                                                                      240
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65
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gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa
                                                                      288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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                                                                      336
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
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gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag
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Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
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gat
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
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                                105
                                                     110
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
        115
                            120
                                                125
Asp
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Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val
ttg gta cca gga tgc cat ggt aac gaa cca tgt atc att cat agc ggt
                                                                       96
Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
                                25
            20
aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg
                                                                      144
Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
        35
                            40
aca gct aaa att gaa atc aaa gct tca atc gat ggt tta gaa gtt gat
                                                                      192
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
    50
                        55
                                            60
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gtt Val 65	ccc Pro	ggt Gly	atc Ile	gat Asp	cca Pro 70	aat Asn	gca Ala	tgc Cys	aac Asn	tat Tyr 75	atg Met	aaa Lys	tgt Cys	cca Pro	ttg Leu 80	240
gtt Val	aac Asn	gga Gly	caa Gln	caa Gln 85	tat Tyr	gat Asp	att Ile	aaa Lys	tat Tyr 90	aca Thr	tgg Trp	aat Asn	gtt Val	cca Pro 95	aaa Lys	288
att Ile	gca Ala	cca Pro	aac Asn 100	tct Ser	gaa Glu	aat Asn	gtt Val	gtc Val 105	gtc Val	act Thr	gtt Val	aaa Lys	gtt Val 110	ttg Leu	ggt Gly	336
gat Asp	aat Asn	ggt Gly 115	gtt Val	ttg Leu	gcc Ala	tgt Cys	gct Ala 120	att Ile	gct Ala	act Thr	cat His	gct Ala 125	aaa Lys	atc Ile	cag Gln	384
gat Asp																387

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<213> Dermatophagoides pteronyssinus

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Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val

5 10 15

Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly 20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln

115 120 125

Asp

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aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala 35 40 45	44
aca gct aaa att gaa atc aaa gct tca atc gat ggt tta agc gtt gat  Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp  50 55 60	.92
gtt ccc ggt atc gat cca aat gca tgc aac tat atg aaa tgt cca ttg Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu 65 70 75 80	40
gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95	88
att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly 100 105 110	36
gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln 115 120 125	84
gat Asp	87
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Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val 1 5 10 15	
Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Ser Gly 20 25 30	
Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala 35 40 45	

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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
     50
                         55
                                             60
 Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
 65
                     70
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
                                 105
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
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Asp
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                                                                        48
Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
ttg gta cca gga tgc cat ggt aac gaa cca tgt atc att cat agc ggt
                                                                        96
Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg
                                                                       144
Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
aca gct aaa att gaa atc aaa gct tca atc gat ggt tta agc gtt gat
                                                                       192
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
gtt ccc ggt atc gat cca aat gca tgc aac tat atg aaa tgt cca ttg
                                                                       240
Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
                    70
gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa
                                                                       288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
                85
att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt
                                                                      336
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
            100
gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag
                                                                      384
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
        115
gat
                                                                      387
Asp
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<213> Dermatophagoides pteronyssinus

<400> 58

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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
115 120 125

Asp

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<212> DNA

<213> Phleum pratense

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Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
           20
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc
                                                                  144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
        35
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag
                                                                  192
Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
    50
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc
                                                                  240
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc
                                                                  288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
                                  90
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac
                                                                  336
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
           100
                               105
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc
                                                                  384
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
       115
                          120
```

acc Thr 130															432
gcc Ala															480
 ctg Leu	_	_			_	_	_	_	_		_	_	_	_	528
gcc Ala	_		_	_		_		_	_			_			576
gcc Ala															624
tac Tyr 210															672
gcc Ala															720
gca Ala			_				_			_	_		_	-	768
aag Lys															816
gcc Ala															861

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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly

- Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60
- Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80
- Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95
- Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110
- Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125
- Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140
- Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175
- Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190
- Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205
- Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220
- Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240
- Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255
- Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly 260 265 270

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Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
                             25
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144

aag gcg acg acc gag gag cag aag ctg atc gag aag atc aac gcc ggc

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly

tto Phe	aag Lys 50	gcg	gcc Ala	ttg Leu	gcc Ala	gct Ala 55	gcc Ala	gcc Ala	ggc	gtc Val	ccg Pro	cca Pro	gcg Ala	gac Asp	aag Lys		192
tac Tyr 65	aac Asn	acg Thr	ttc Phe	gtc Val	gca Ala 70	acc Thr	ttc Phe	ggc Gly	gcg Ala	gcc Ala 75	tcc Ser	aac Asn	aag Lys	gcc Ala	ttc Phe 80		240
gcg Ala	gag Glu	ggc Gly	ctc Leu	tcg Ser 85	ggc Gly	gag Glu	ccc Pro	aag Lys	ggc Gly 90	gcc Ala	gcc Ala	gaa Glu	tcc Ser	agc Ser 95	tcc Ser		288
aag Lys	gcc Ala	gcg Ala	ctc Leu 100	acc Thr	tcc Ser	aag Lys	ctc Leu	gac Asp 105	gcc Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	gcc Ala	tac Tyr		336
aag Lys	aca Thr	gcc Ala 115	gag Glu	ggc	gcg Ala	acg Thr	cct Pro 120	gag Glu	gcc Ala	aag Lys	tac Tyr	gac Asp 125	gcc Ala	tac Tyr	gtc Val		384
gcc Ala	acc Thr 130	gta Val	agc Ser	agc Ser	gcg Ala	ctc Leu 135	cgc Arg	atc Ile	atc Ile	gcc Ala	ggc Gly 140	acc Thr	ctc Leu	gag Glu	gtc Val		432
cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160		480
Glu	Leu	Gln	Val	Ile 165	Glu	aag Lys	Val	Asp	Ala 170	Ala	Phe	Lys	Val	Ala 175	Āla		528
Thr	Ala	Ala	Asn 180	Ala	Ala	ccc Pro	Ala	Asn 185	Asp	Lys	Ile	Thr	Val 190	Phe	Glu		576
Ala	Ala	Phe 195	Asn	Asp	Ala	atc Ile	Lys 200	Ala	Ser	Thr	Gly	Gly 205	Ala	Tyr	Glu		624
agc Ser	tac Tyr 210	aag Lys	ttc Phe	atc Ile	ccc Pro	gcc Ala 215	ctg Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	aaa Lys	gcc Ala	tac Tyr		672
gcc Ala 225	gcc Ala	acc Thr	gtc Val	gcc Ala	acc Thr 230	gcg Ala	ccg Pro	gag Glu	gtc Val	aag Lys 235	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu 240		720
acc Thr	gca Ala	gaa Glu	aaa Lys	aag Lys 245	gcc Ala	atc Ile	acc Thr	Ala	atg Met 250	tcc Ser	gaa Glu	gca Ala	aaa Lys	aag Lys 255	gct Ala		768
gcc Ala	aag Lys	ccc Pro	gcc Ala 260	gcc Ala	gct Ala	gcc Ala	Thr	gcc Ala 265	acc Thr	gca Ala	acc Thr	gcc Ala	gcc Ala 270	gtt Val	ggc Gly	į	816

gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285

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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60

Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

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Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
180 185 190
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Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285

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tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca g	96													
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly 35 40 45	144													
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60	192													
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80	240													
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser 85 90 95	288													
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110	336													
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125	384													
gcc acc gta agc gag gcg ctc agc atc atc gcc ggc acc ctc gag gtc Ala Thr Val Ser Glu Ala Leu Ser Ile Ile Ala Gly Thr Leu Glu Val 130 135 140	432													
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160	480													
gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gct gcc Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175	528													
ace gee gee aac gee gee eee gee aac gae aag att ace gte tte gag	576													

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190	
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205	624
agc tac aag ttc atc ccc gcc ctg gag gcc gcc gtc aag aaa gcc tac Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220	672
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240	720
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255	768
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly 260 265 270	816
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285	861
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Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Glu Ala Leu Ser Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285

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Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
           20
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc
                                                                 144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
       35
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag
                                                                 192
Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
   50
                       55
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc
                                                                 240
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc
                                                                 288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
                                  90
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aag Lys	g gcc s Ala	gcg Ala	cto Leu 100	Thr	tcc Ser	aag Lys	ctc Leu	gac Asp 105	Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	Ala	tac Tyr	336
aag Lys	g aca Thr	gcc Ala 115	Glu	ggc	gcg Ala	acg Thr	cct Pro 120	gag Glu	gcc Ala	aag Lys	tac Tyr	gac Asp 125	gcc Ala	tac Tyr	gtc Val	384
gco Ala	acc Thr 130	Val	agc Ser	gag Glu	gcg Ala	ctc Leu 135	cgc Arg	aaa Lys	atc Ile	gcc Ala	ggc Gly 140	Thr	ctc Leu	gag Glu	gtc Val	432
His 145		Val	Lys	Pro	Ala 150	Ala	Glu	Glu	Val	Lys 155	Val	Ile	Pro	Ala	Gly 160	480
Glu	ctg Leu	Gln	Val	Ile 165	Glu	Lys	Val	Asp	Ala 170	Ala	Phe	Lys	Val	Ala 175	Ala	528
Thr	gcc Ala	Ala	Asn 180	Ala	Ala	Pro	Ala	Asn 185	Asp	Lys	Ile	Thr	Val 190	Phe	Glu	576
Ala	gcc Ala	Phe 195	Asn	Asp	Ala	Ile	Lys 200	Ala	Ser	Thr	Gly	Gly 205	Ala	Tyr	Glu	624
Ser	tac Tyr 210	Lys	Phe	Ile	Pro	Ala 215	Leu	Glu	Ala	Ala	Val 220	Lys	Lys	Ala	Tyr	672
A1a 225	gcc Ala	Thr	Val	Ala	Thr 230	Ala	Pro	Glu	Val	Lys 235	Tyr	Thr	Val	Phe	Glu 240	720
Thr	gca Ala	Glu	Lys	Lys 245	Ala	Ile	Thr	Ala	Met 250	Ser	Glu	Ala	Lys	Lys 255	Ala	768
Ala	aag Lys	Pro	Ala 260	Ala	Ala	Ala	Thr	Ala 265	Thr	Ala	Thr	Ala	Ala 270	Val	ggc Gly	816
Ala	gcc Ala	acc Thr 275	ggc	gcc Ala	gcc Ala	Thr	gcc Ala 280	gct Ala	act Thr	ggt Gly	ggc	tac Tyr 285	aaa Lys	gtc Val		861

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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Glu Ala Leu Arg Lys Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu

225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

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260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285

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Ala 1	Asp	Leu	Gly	Tyr 5	Gly	Pro	Ala	Thr	Pro 10	Ala	Ala	Pro	Ala	Ala 15	Gly	
					ccc Pro											96
_	_	_			gag Glu	_		_		_	-			_		144
					gcc Ala											192
					gca Ala 70											240
					ggc Gly											288
					tcc Ser											336
					gcg Ala											384
-			_	_	gcg Ala		-			-					_	432
					gcg Ala 150											480
					gag Glu											528
					gcc Ala											576
					gcc Ala											624
					ccc Pro											672
					acc Thr											720

225	225									235					240	
acc	gca	gaa	aaa	aag	gcc	atc	acc	gcc	atg	tcc	gaa	gca	aaa	aag	gct	

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255

gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc 816
Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
260 265 270

768

gcg gcc acc ggc gcc gcc gcc gct act ggt ggc tac aaa gtc
Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

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Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu 180 185 Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205 Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220 Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 235 Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 250 Ala Lys Pro Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly 265 Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 280 285 <210> 69 <211> 861 <212> DNA <213> Phleum pratense <220> <221> CDS <222> (1)..(861) <223>

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Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
           20
aaq gcq acq acc qaq gaq caq aaq ctq atc qaq aag aaa aac gcc qqc
                                                                   144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
       35
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag
                                                                   192
Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
   50
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc
                                                                   240
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
geg gag ggc etc teg gge gag eec aag gge gee gee gaa tee age tee
                                                                   288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
                                   90
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac
                                                                   336
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
           100
                               105
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc
                                                                   384
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
       115
                           120
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc
                                                                   432
Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
    130
                       135
                                           140
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cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	4	80
gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	5	28
acc Thr	gcc Ala	gcc Ala	aac Asn 180	gcc Ala	gcc Ala	ccc Pro	gcc Ala	aac Asn 185	gac Asp	aag Lys	ttc Phe	acc Thr	gtc Val 190	ttc Phe	gag Glu	5	76
gcc Ala	gcc Ala	ttc Phe 195	aac Asn	gac Asp	gcc Ala	atc Ile	aag Lys 200	gcg Ala	agc Ser	acg Thr	ggc Gly	ggc Gly 205	gcc Ala	tac Tyr	gag Glu	6:	24
agc Ser	tac Tyr 210	aag Lys	ttc Phe	atc Ile	ccc Pro	gcc Ala 215	ctg Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	aaa Lys	gcc Ala	tac Tyr	6'	72
gcc Ala 225	gcc Ala	acc Thr	gtc Val	gcc Ala	acc Thr 230	gcg Ala	ggc Gly	gag Glu	gtc Val	aag Lys 235	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu 240	72	20
acc Thr	gca Ala	gaa Glu	aaa Lys	aag Lys 245	gcc Ala	atc Ile	acc Thr	gcc Ala	atg Met 250	tcc Ser	gaa Glu	gca Ala	aaa Lys	aag Lys 255	gct Ala	76	58
gcc Ala	aag Lys	ccc Pro	gcc Ala 260	gcc Ala	gct Ala	gcc Ala	acc Thr	gcc Ala 265	acc Thr	gca Ala	acc Thr	gcc Ala	gcc Ala 270	gtt Val	ggc Gly	81	16
gcg Ala	gcc Ala	acc Thr 275	ggc Gly	gcc Ala	gcc Ala	acc Thr	gcc Ala 280	gct Ala	act Thr	ggt Gly	ggc Gly	tac Tyr 285	aaa Lys	gtc Val		86	51
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Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys

55

50

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

60

- Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95
- Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110
- Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125
- Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140
- His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160
- Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175
- Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu
  180 185 190
- Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205
- Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220
- Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240
- Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255
- Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
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96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
                              25
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc
                                                                144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
       35
                                             45
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag
                                                                192
Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
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tac Tyr 65	agg Arg	acg Thr	ttc Phe	gtc Val	gca Ala 70	acc Thr	ttc Phe	ggc Gly	gcg Ala	gcc Ala 75	tcc Ser	aac Asn	aag Lys	gcc Ala	ttc Phe 80	240
gcg Ala	gag Glu	ggc Gly	ctc Leu	tcg Ser 85	ggc Gly	gag Glu	ccc Pro	aag Lys	ggc Gly 90	gcc Ala	gcc Ala	gaa Glu	tcc Ser	agc Ser 95	tcc Ser	288
aag Lys	gcc Ala	gcg Ala	ctc Leu 100	acc Thr	tcc Ser	aag Lys	ctc Leu	gac Asp 105	gcc Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	gcc Ala	tac Tyr	336
aag Lys	aca Thr	gcc Ala 115	gag Glu	ggc	gcg Ala	acg Thr	cct Pro 120	gag Glu	gcc Ala	aag Lys	tac Tyr	gac Asp 125	gcc Ala	tac Tyr	gtc Val	384
gcc Ala	acc Thr 130	gta Val	agc Ser	agc Ser	gcg Ala	ctc Leu 135	cgc Arg	atc Ile	atc Ile	gcc Ala	ggc Gly 140	acc Thr	ctc Leu	gag Glu	gtc Val	432
cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	480
gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	528
acc Thr	gcc Ala	gcc Ala	aac Asn 180	gcc Ala	gcc Ala	ccc Pro	gcc Ala	aac Asn 185	gac Asp	aag Lys	att Ile	acc Thr	gtc Val 190	ttc Phe	gag Glu	576
gcc Ala	gcc Ala	ttc Phe 195	aac Asn	gac Asp	gcc Ala	atc Ile	aag Lys 200	gcg Ala	agc Ser	acg Thr	ggc Gly	ggc Gly 205	gcc Ala	tac Tyr	gag Glu	624
agc Ser	tac Tyr 210	aag Lys	ttc Phe	atc Ile	ggc Gly	gcc Ala 215	ctg Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	cag Gln	gcc Ala	tac Tyr	672
gcc Ala 225	gcc Ala	acc Thr	gtc Val	gcc Ala	acc Thr 230	gcg Ala	ccg Pro	gag Glu	gtc Val	aag Lys 235	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu 240	720
acc Thr	gca Ala	gaa Glu	aaa Lys	aag Lys 245	gcc Ala	atc Ile	acc Thr	gcc Ala	atg Met 250	tcc Ser	gaa Glu	gca Ala	aaa Lys	aag Lys 255	gct Ala	768
gcc Ala	aag Lys	ccc Pro	gcc Ala 260	gcc Ala	gct Ala	gcc Ala	acc Thr	gcc Ala 265	acc Thr	gca Ala	acc Thr	gcc Ala	gcc Ala 270	gtt Val	ggc Gly	816
gcg Ala	gcc Ala	acc Thr 275	ggc Gly	gcc Ala	gcc Ala	Thr	gcc Ala 280	gct Ala	act Thr	ggt Gly	ggc Gly	tac Tyr 285	aaa Lys	gtc Val		861

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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190

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Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
        195
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Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
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                        215
Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225
                                        235
Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
Ala Lys Pro Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
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tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca g	96													
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly 35 40 45	144													
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60	192													
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80	240													
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95	288													
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110	336													
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125	384													
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val	432													
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160	480													
gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gcc gcc Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175	528													
acc gcc gcc aac gcc gcc ccc gcc aac gac aag att acc gtc ttc gag Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190	576													
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag	624													

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agc Ser	tac Tyr 210	Asn	ttc Phe	atc Ile	ccc Pro	gcc Ala 215	Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	cag Gln	gcc Ala	tac Tyr	67:	2
gcc Ala 225	Ala	acc Thr	gtc Val	gcc Ala	acc Thr 230	gcg Ala	ccg Pro	gag Glu	gtc Val	aag Lys 235		act Thr	gtc Val	ttt Phe	gag Glu 240	720	0
acc Thr	gca Ala	gaa Glu	aaa Lys	aag Lys 245	gcc Ala	atc Ile	acc Thr	gcc Ala	atg Met 250	tcc Ser	gaa Glu	gca Ala	aaa Lys	aag Lys 255	gct Ala	768	8
gcc Ala	aag Lys	ccc Pro	gcc Ala 260	gcc Ala	gct Ala	gcc Ala	acc Thr	gcc Ala 265	acc Thr	gca Ala	acc Thr	gcc Ala	gcc Ala 270	gtt Val	ggc Gly	816	5
gcg Ala	gcc Ala	acc Thr 275	ggc Gly	gcc Ala	gcc Ala	acc Thr	gcc Ala 280	gct Ala	act Thr	ggt Gly	ggc Gly	tac Tyr 285	aaa Lys	gtc Val		861	L
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Ala 1	Asp	Leu		5					10		Ala Ala			15	-		
Ala 1 Tyr	Asp Thr	Leu Pro	Ala 20	5 Thr	Pro	Ala	Ala	Pro 25	10 Ala	Gly		Glu	Pro 30	15 Ala	Gly		
Ala 1 Tyr Lys	Asp Thr	Leu Pro Thr 35	Ala 20 Thr	5 Thr Glu	Pro Glu	Ala Gln	Ala Lys 40	Pro 25 Leu	10 Ala Ile	Gly Glu	Ala	Glu Lys 45	Pro 30 Asn	15 Ala Ala	Gly		
Ala 1 Tyr Lys	Asp Thr Ala Lys 50	Leu Pro Thr 35	Ala 20 Thr	5 Thr Glu Leu	Pro Glu Ala	Ala Gln Ala 55	Ala Lys 40 Ala	Pro 25 Leu Ala	10 Ala Ile Gly	Gly Glu Val	Ala Lys Pro	Glu Lys 45 Pro	Pro 30 Asn Ala	Ala Ala Asp	Gly Gly Lys		
Ala 1 Tyr Lys Phe	Asp Thr Ala Lys 50	Leu Pro Thr 35 Ala	Ala 20 Thr Ala Phe	5 Thr Glu Leu Val	Pro Glu Ala Ala 70	Ala Gln Ala 55	Ala Lys 40 Ala	Pro 25 Leu Ala Gly	10 Ala Ile Gly Ala	Gly Glu Val Ala 75	Ala Lys Pro 60	Glu Lys 45 Pro Asn	Pro 30 Asn Ala Lys	Ala Ala Asp	Gly Gly Lys Phe		

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly 260 265 270

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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly
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Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
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                                                                  240
Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
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gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc
                                                                  288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac
                                                                 336
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
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                              105
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gcc Ala	acc Thr 130	gta Val	agc Ser	gag Glu	gcg Ala	ctc Leu 135	agc Ser	atc Ile	atc Ile	gcc Ala	ggc Gly 140	acc Thr	ctc Leu	gag Glu	gtc Val	432
cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	480
gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	528
acc Thr	gcc Ala	gcc Ala	aac Asn 180	gcc Ala	gcc Ala	ccc Pro	gcc Ala	aac Asn 185	gac Asp	aag Lys	att Ile	acc Thr	gtc Val 190	ttc Phe	gag Glu	576
gcc Ala	gcc Ala	ttc Phe 195	aac Asn	gac Asp	gcc Ala	atc Ile	aag Lys 200	gcg Ala	agc Ser	acg Thr	ggc Gly	ggc Gly 205	gcc Ala	tac Tyr	gag Glu	624
agc Ser	tac Tyr 210	aag Lys	ttc Phe	atc Ile	ccc Pro	gcc Ala 215	ctg Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	aaa Lys	gcc Ala	tac Tyr	672
gcc Ala 225	gcc Ala	acc Thr	gtc Val	gcc Ala	acc Thr 230	gcg Ala	ccg Pro	gag Glu	gtc Val	aag Lys 235	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu 240	720
acc Thr	gca Ala	gaa Glu	aaa Lys	aag Lys 245	gcc Ala	atc Ile	acc Thr	gcc Ala	atg Met 250	tcc Ser	gaa Glu	gca Ala	aaa Lys	aag Lys 255	gct Ala	768
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- Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80
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- Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110
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- His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160
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- Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190
- Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205
- Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220
- Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240
- Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala

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Tyr	Thr	Pro	Ala 20	Thr	Pro	Ala	. Ala	Pro 25	Ala	Gly	Ala	a Glu	Pro	Ala	Gly		
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ttc Phe	aag Lys 50	gcg Ala	gcc Ala	ttg Leu	gcc Ala	gct Ala 55	gcc Ala	gcc Ala	ggc Gly	gtc Val	ecc Pro	cca Pro	gcg Ala	gac	aag Lys		192
tac Tyr 65	aac Asn	acg Thr	ttc Phe	gtc Val	gca Ala 70	acc Thr	ttc Phe	ggc Gly	gcg Ala	gcc Ala 75	tcc Ser	aac Asn	aag Lys	gcc Ala	ttc Phe 80		240
gcg Ala	gag Glu	ggc Gly	ctc Leu	tcg Ser 85	ggc Gly	gag Glu	ccc Pro	aag Lys	ggc Gly 90	gcc Ala	gcc Ala	gaa Glu	tcc Ser	agc Ser 95	tcc Ser		288
aag Lys	gcc Ala	gcg Ala	ctc Leu 100	acc Thr	tcc Ser	aag Lys	ctc Leu	gac Asp 105	gcc Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	gcc Ala	tac Tyr		336
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gcc Ala	acc Thr 130	gta Val	agc Ser	gag Glu	gcg Ala	ctc Leu 135	cgc Arg	aaa Lys	atc Ile	gcc Ala	ggc Gly 140	acc Thr	ctc Leu	gag Glu	gtc Val	•	432
cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	4	480
gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	Ę	528
acc Thr	gcc Ala	gcc Ala	aac Asn 180	gcc Ala	gcc Ala	ccc Pro	gcc Ala	aac Asn 185	gac Asp	aag Lys	att Ile	acc Thr	gtc Val 190	ttc Phe	gag Glu	5	576
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Ser	tac Tyr 210	aag Lys	ttc Phe	atc Ile	ccc Pro	gcc Ala 215	ctg Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	aaa Lys	gcc Ala	tac Tyr	6	572
gcc Ala 225	gcc Ala	acc Thr	gtc Val	gcc Ala	acc Thr 230	gcg Ala	ccg Pro	gag Glu	gtc Val	aag Lys 235	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu 240	7	20
acc Thr	gca Ala	gaa Glu	aaa Lys	aag Lys	gcc Ala	atc Ile	acc Thr	gcc Ala	atg Met	tcc Ser	gaa Glu	gca Ala	aaa Lys	aag Lys	gct Ala	7	68

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Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu 180 185 190

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Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255

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Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
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Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
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Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
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cac gcc gtc aag ccc gcg gcc gag gtc aag gtc atc ccc gcc ggc
                                                                  480
His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145
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Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255

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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
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Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
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Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
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ser	Tyr 210	Asn	Phe	Ile	Pro	Ala 215	Leu	Glu	Ala	Ala	Val 220	aag Lys	Gln	Ala	Tyr	(	672
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gcc Ala	Lys	Pro	Ala 260	Ala	Ala	Ala	Thr	Ala 265	Thr	Ala	Thr	Ala	Ala 270	Val	ggc Gly	8	316
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Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
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Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205

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Lys	Ala	Thr 35	Thr	Glu	Glu	Gln	Lys 40	Leu	Ile	Glu	Lys	Lys 45	Asn	Ala	Gly	
Phe	Lys 50	Ala	Ala	Leu	Ala	Ala 55	Ala	Ala	Gly	Val	Pro 60	Pro	Ala	Asp	Lys	
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Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu 180 185 190

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Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220

Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255

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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
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Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
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Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
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Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
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Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
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                                105
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Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
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gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	528
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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly

- Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly 35 40 45
- Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60
- Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80
- Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95
- Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110
- Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125
- Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140 .
- His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
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- Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175
- Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu 180 185 190
- Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205
- Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220
- Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240
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145

150

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Ser	Cys	Trp 35	Ala	Phe	Ser	Gly	Val 40	Ala	Ala	Thr	Glu	Ser 45	Ala	Tyr	Leu	
Ala	Tyr 50	Arg	Asn	Gln	Ser	Leu 55	Asp	Leu	Ala	Glu	Gln 60	Glu	Leu	Val	Asp	
Сув 65	Ala	Ser	Gln	His	Gly 70	Cys	His	Gly	Asp	Thr 75	Ile	Pro	Arg	Gly	Ile 80	
Glu	Tyr	Ile	Gln	His 85	Asn	Gly	Val	Val	Gln 90	Glu	Ser	Tyr	Tyr	Arg 95	Tyr	
Val	Ala	Arg	Glu 100	Gln	Ser	Cys .	Arg	Arg 105	Pro	Asn	Ala	Gln	Arg 110	Phe	Gly	
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115 120

Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile 130 135 Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Arg Thr Ile Ile Gln 145 150 Arg Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val Gly Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile 205 Asp Leu Met Met Ile Glu Glu Tyr Pro Tyr Val Val Ile Leu 210 215 220 <210> 89 <211> 387 <212> DNA <213> Dermatophagoides pteronyssinus <220> <221> CDS <222> (1)..(387) <223> <400> 89 gat caa gtc gat gtc aaa gat tgt gcc aat cat gaa atc aaa aaa gtt 48 Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val 1 15 ttg gta cca gga tgc cat ggt tca gaa cca tgt atc att cat cgt ggt 96 Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly 20 aaa cca ttc caa ttg gaa gcc gtt ttc gaa gcc aac caa aac aca aaa 144 Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys acc gct aaa att gaa atc aaa gcc tca atc gat ggt tta gaa gtt gat 192 Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp gtt ccc ggt atc gat cca aat gca tgc cat tac atg aaa tgc cca ttg 240 Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 80 gtt aaa gga caa caa tat gat att aaa tat aca tgg aat gtt ccg aaa 288

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys

85 90 95

att gca cca aaa tct gaa aat gtt gtc gtc act gtt aaa gtt atg ggt

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly

100 105 110

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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe 50 55 60

Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys 70 75 80

Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu 85 90 95

Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly Ser 100 105 110

Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val 115 120 125	
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

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Asp

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35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125

Ala Thr Val Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu

195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 230 235 240 Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Gln Lys Ala 245 250 255 Ala Lys Pro Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly 260 270 Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 <210> 97 <211> 41 <212> DNA <213> Artificial Sequence <220> <223> oligonucleotide primer <400> 97 aattatgaga ctgagaccac ctctgttatc ccagcagctc g 41 <210> 98 <211> 41 <212> DNA <213> Artificial Sequence <220> <223> oligonucleotide primer <400> 98 cgagctgctg ggataacaga ggtggtctca gtctcataat t 41 <210> 99 <211> 23 <212> DNA <213> Artificial Sequence <220> <223> oligonucleotide primer <400> 99 tgagaccccc tctgttatcc cag 23

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Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His

35 40 45

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro 50 55 60

Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp 65 70 75 80

Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly
85 90 95

His Asp Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val
100 105 110

Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu 115 120 125

Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys 130 135 140

Phe Ser Gly Asn Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val 145 150 155 160

Trp Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln 165 170 175

Glu Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly
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<210> 118

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<212> PRT

<213> Vespula

<220>

<221> MISC\_FEATURE

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<223> where X is any amino acid

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Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His 35 40 45

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro 50 55 60

Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp 65 70 75 80

Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly 85 90 95

His Asp Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val
100 105 110

Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu 115 120 125

Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys 130 135 140

Phe Ser Gly Asn Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val 145 150 155 160

Trp Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln
165 170 175

Glu Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly
180 185 190

Asn Phe Lys Asn Glu Glu Leu Xaa Xaa Thr Lys 195 200

<210> 119

<211> 201

<212> PRT

<213> Vespula

<220>

- <221> MISC\_FEATURE
- <222> (1)..(201)
- <223> where X is any amino acid

<400> 119

Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala 1 5 10 15

Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val Val 20 25 30

Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro 50 55 60

Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp 65 70 75 80

Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly 85 90 95

His Asp Thr Cys Arg Asp Xaa Ala Lys Tyr Gln Val Gly Gln Asn Val
100 105 110

Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu 115 120 125

Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys 130 135 140

Phe Ser Gly Asn Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val Trp 145 150 155 160

Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Phe Ile Gln Glu 165 170 175

Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly Asn 180 185 190

Phe Asn Glu Glu Leu Xaa Xaa Thr Lys 195 200 <210> 120

<211> 194

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<222> (1)..(194)

<223> where X is any amino acid

<400> 120

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Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val Ser 20 25 30

Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His Asn 35 40 45

Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly 50 55 60

Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asp Glu Leu 65 70 75 80

Ala Tyr Xaa Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His Asp 85 90 95

Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val Ala Leu 100 105 110

Thr Gly Ser Thr Ala Ala Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp 115 120 125

Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys Phe Ser Asn Phe 130 135 140

Leu Lys Gly His Tyr Thr Gln Met Val Trp Ala Asn Thr Lys Glu Val
145 150 155 160

Gly Cys Gly Ser Ile Lys Tyr Ile Gln Glu Trp His Lys His Tyr Leu 165 170 175 Val Cys Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu Glu Leu Xaa Xaa 180 185 190

Thr Lys

<210> 121

<211> 198

<212> PRT

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<220>

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<222> (1)..(198)

<223> where X can be any amino acid

<400> 121

Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala 1 5 10 15

Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Xaa Val Val 20 25 30

Ser Tyr Gly Leu Thr Lys Glu Lys Gln Asp Ile Leu Lys Glu His Asn 35 40 45

Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly 50 55 60

Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp Glu 65 70 75 80

Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His
85 90 95

Asp Thr Cys Arg Asp Val Ala Lys Tyr Val Gly Gln Asn Val Ala Leu 100 105 110

Thr Gly Ser Thr Ala Lys Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp
115 120 125

Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys Phe Ser Gly Asn 130 \$135\$ 140

Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val Trp Ala Asn Thr 145 150 155 160

Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln Glu Lys Trp His 165 170 175

Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu 180 185 190

Glu Leu Xaa Xaa Thr Lys 195

<210> 122

<211> 192

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<222> (1)..(192)

<223> where X is any amino acid

<400> 122

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Cys Lys Tyr Ser Leu Lys Pro Asn Cys Asn Lys Val Val Tyr Gly Leu 20 25 30

Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His Asn Asp Phe Arg 35 40 45

Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro 50 55 60

Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asp Glu Leu Ala Tyr Thr 65 70 75 80

Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His Asp Thr Cys Arg
85 90 95

Asp Val Ala Lys Tyr Val Gly Gln Asn Val Ala Leu Thr Gly Ser Thr 100 105 110

Ala Ala Lys Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp Glu Asp Glu 115 120 125

Val Lys Asp Tyr Asn Pro Lys Lys Lys Phe Ser Asn Phe Leu Lys Gly
130 135 140

His Tyr Thr Gln Met Val Trp Ala Asn Thr Lys Glu Val Gly Cys Gly 145 150 155 160

Ser Ile Lys Tyr Ile Gln Xaa Lys Trp His Lys His Tyr Leu Val Cys 165 170 175

Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu Glu Leu Xaa Xaa Thr Lys 180 185 190

<210> 123

<211> 170

<212> PRT

<213> Vespula

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<222> (1)..(170)

<223> where X is any amino acid

<400> 123

Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala Cys

1 10 15

Lys Tyr Gly Thr Ser Lys Pro Asn Cys Gly Val Val Tyr Gly Leu Thr 20 25 30

Glu Lys Gln Thr Ile Leu Lys His Asn Asp Phe Arg Xaa Xaa Ala Xaa 35 40 45

Gly Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Asn 50 55 60

Met Asn Leu Val Trp Asn Asp Glu Leu Ala Xaa Ala Gln Val Trp Ala 65 70 75 80

Gln Cys Asn Gln Tyr Gly His Asp Thr Cys Lys Asp Lys Tyr Val Gly 85 90 95

Gln Asn Ile Ala Ile Thr Ala Ala Xaa Asp Pro Xaa Xaa Leu Val Lys 100 105 110

Met Trp Glu Glu Val Lys Asp Phe Asn Pro Trp Ser Asn Lys Thr Gly 115 120 125

His Tyr Thr Gln Met Val Trp Ala Thr Lys Glu Thr Gly Cys Gly Ser 130 135 140

Gly Asn Phe Asn Glu Leu Tyr Xaa Thr Lys 165 170

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<222> (1)..(166)

<223> where X is any amino acid

<400> 124

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1 10 15

Tyr Gly Thr Ser Lys Pro Asn Cys Gly Asn Val Val Ser Tyr Gly Val 20 25 30

Thr Glu Lys Gln Phe Ile Leu Lys His Asn Asp Phe Arg Xaa Xaa Ala 35 40 45

Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys
50 55 60

Asn Met Asn Leu Val Trp Asn Glu Leu Ala Ile Ala Gln Thr Trp Ala 65 70 75 80

Gln Cys Tyr Gly His Asp Thr Cys Lys Asp Lys Tyr Asn Val Gly Gln 85 90 95 Asn Ile Ala Val Xaa Gly Ser Thr Ala Ala Tyr Thr Leu Val Lys Trp
100 105 110

Glu Glu Val Lys Asp Xaa Asn Pro Trp Gly Asn Xaa Xaa Lys Gly His 115 120 125

Tyr Thr Gln Met Val Trp Ala Thr Lys Glu Ile Gly Cys Gly Ser Ile 130 135 140

Lys Tyr Val Trp His Tyr Leu Val Cys Asn Tyr Gly Pro Gly Asn Phe 145 150 155 160

Asn Glu Val Xaa Xaa Lys 165

<210> 125

<211> 156

<212> PRT

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<222> (1)..(156)

<223> where X is any amino acid

<400> 125

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1 10 15

Gly Thr Ser Lys Pro Asn Cys Gly Val Val Gly Leu Thr Lys Gln Glu 20 25 30

Phe Ile Leu Lys His Asn Phe Phe Arg Xaa Xaa Ala Arg Gly Leu Glu 35 40 45

Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Met Leu Val Trp 50 55 60

Asn Asp Glu Leu Ala Ile Ala Gln Val Trp Ala Asn Asn Cys Gln Tyr 65 70 75 80

Gly His Asp Cys Arg Ala Lys Tyr Val Gly Gln Asn Ile Ala Ile Thr 85 90 95 Ala Xaa Xaa Xaa Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr
100 105 110

Gln Asn Lys Gly His Tyr Thr Gln Met Val Trp Ala Thr Lys Glu Ile 115 120 125

Gly Cys Gly Ser Ile Lys Tyr Ile Trp His Lys His Tyr Leu Val Cys 130 135 140

Asn Tyr Gly Pro Gly Asn Asn Glu Leu Xaa Xaa Lys 145 150 155

<210> 126

<211> 155

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<220>

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<223> where X is any amino acid

<400> 126

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Gly Thr Ser Lys Pro Asn Cys Gly Val Val Gly Leu Thr Lys Gln Glu 20 25 30

Glu Ile Leu Lys His Asn Xaa Phe Arg Xaa Xaa Ala Arg Gly Leu Glu 35 40 45

Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Met Leu Val Trp 50 55 60

Asn Asp Glu Leu Ala Ile Ala Gln Val Trp Ala Asn Gln Cys Asn Tyr 65 70 75 80

Gly His Asp Cys Arg Ala Lys Tyr Val Gly Gln Asn Ile Ala Thr Ser 85 90 95

Ala Xaa Xaa Xaa Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr
100 105 110

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Gln Asn Lys Gly His Tyr Thr Gln Met Val Trp Ala Thr Lys Glu Ile
        115
                            120
Gly Cys Gly Ser Tyr Ile Asp Trp His Arg His Tyr Leu Val Cys Asn
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Tyr Gly Pro Gly Asn Asn Glu Ile Xaa Xaa Lys
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<210> 131

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actagaggta	atcctggacc	acagcctcca	gcgaagaata	tgaaaaattt	ggtatggaac	240
gacgagttag	cttatgtcgc	ccaagtgtgg	gctaatcaat	gtcaatatgg	tcacgatact	300
tgcagggatg	tagcaaaata	tcaggttgga	caaaacgtag	ccttaacagg	tagcacggct	360
gctaaatacg	atgatccagt	taaactagtt	aaaatgtggg	aagatgaagt	gaaagattat	420
aatcctaaga	aaaagttttc	gggaaacgac	tttctgaaaa	ccggccatta	cactcaaatg	480
gtttgggcta	acaccaagga	agttggttgt	ggaagtataa	aatacattca	agagaaatgg	540
cacaaacatt	accttgtatg	taattatgga	cccagcggaa	actttaagaa	tgaggaactt	600
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atcaagtcga	tgtcaaagat	tgtgccaatc	atgaaatcaa	aaaagttttg	gtaccaggat	180
gccatggttc	agaaccatgt	atcattcatc	gtggtaaacc	attccaattg	gaagccgttt	240
tcgaagccaa	ccaaaacaca	aaaacggcta	aaattgaaat	caaagcctca	atcgatggtt	300
tagaagttga	tgttcccggt	atcgatccaa	atgcatgcca	ttacatgaaa	tgcccattgg	360
ttaaaggaca	acaatatgat	attaaatata	catggaatgt	tccgaaaatt	gcaccaaaat	420
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<300>

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<309> 1996-02-01

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Val Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg 35 40 45

Gly Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr 50 55 60

Lys Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val 65 70 75 80

Asp Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro 85 90 95

Leu Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro 100 105 110

Lys Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met 115 120 125

Gly Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile 130 135 140

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 <400> 163
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                                                                       32
 <210> 164
 <211> 27
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> anti-sense primer
 <400> 164
ggaaacagct atgaccatga ttacgcc
                                                                      27
<210> 165
<211> 50
<212> DNA
<213> Artificial Sequence
<220>
<223> primer
<400> 165
ctacgcatgc cattacatga aatgcccatt ggttaatgga caacaatatg
                                                                      50
<210> 166
<211> 46
<212> DNA
<213> Artificial Sequence
<220>
<223> OB27 sense primer
<400> 166
ggaattcctc gagaaaagag atcaagtcga tgtcaaagat tgtgcc
                                                                      46
<210> 167
<211> 129
<212> PRT
<213> Dermatophagoides pteronyssinus
<400> 167
Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
                                                        15
Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
            20
```

Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Val Lys Cys Pro Leu 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
100 105 110

Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg

Asp

<210> 168

<211> 129

<212> PRT

<213> Dermatophagoides pteronyssinus

<400> 168

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val 1 5 10 15

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly 20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Lys 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys

90 95

Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg 115 120 125

Asp

<210> 169

<211> 129

<212> PRT

<213> Dermatophagoides pteronyssinus

<400> 169

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val

5 10 15

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
20 25 30

Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Ser Lys 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Ile Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg

Asp

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<210> 170
<211> 129
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<212> PRT

<213> Dermatophagoides pteronyssinus

<400> 170

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val 1 5 10 15

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
20 25 30

Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Ser Lys 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
100 105 110

Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg 115 120 125

Asp

<210> 171

<211> 129

<212> PRT

<213> Dermatophagoides pteronyssinus

<400> 171

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val

5 10 15

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly 20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Lys 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly 100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg 115 120 125

Asp

<210> 172

<211> 128

<212> PRT

<213> Dermatophagoides pteronyssinus

<400> 172

Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val Leu 1 5 10 15

Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly Lys
20 25 30

Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys Thr 35 40 45

Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp Val 50 55 60

Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu Val 65 70 75 80 Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys Ile 85 90 95

Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly Asp

Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg Asp 115 120 125

<210> 173

<211> 146

<212> PRT

<213> Dermatophagoides farinae

<400> 173

Met Ile Ser Lys Ile Leu Cys Leu Ser Leu Leu Val Ala Ala Val Val 1 5 10 15

Ala Asp Gln Val Asp Val Lys Asp Cys Ala Asn Asn Glu Ile Lys Lys
20 25 30

Val Met Val Asp Gly Cys His Gly Ser Asp Pro Cys Ile Ile His Arg 35 40 45

Gly Lys Pro Phe Thr Leu Glu Ala Leu Phe Asp Ala Asn Gln Asn Thr 50 55 60

Lys Thr Ala Lys Ile Glu Ile Lys Ala Ser Leu Asp Gly Leu Glu Ile 65 70 75 80

Asp Val Pro Gly Ile Asp Thr Asn Ala Cys His Phe Met Lys Cys Pro 85 90 95

Leu Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro 100 105 110

Lys Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Ile 115 120 125

Gly Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile 130 135 140

Arg Asp 145 <210> 174

<211> 138

<212> PRT

<213> Dermatophagoides farinae

<400> 174

Ser Leu Leu Val Ala Ala Val Val Ala Asp Gln Val Asp Val Lys Asp 1 5 10 15

Cys Ala Asn Asn Glu Ile Lys Lys Val Met Val Asp Gly Cys His Gly 20 25 30

Ser Asp Pro Cys Ile Ile His Arg Gly Lys Pro Phe Thr Leu Glu Ala 35 40 45

Leu Phe Asp Ala Asn Gln Asn Ser Thr Thr Ala Lys Ile Glu Ile Lys
50 55 60

Ala Ser Leu Asp Gly Leu Glu Ile Asp Val Pro Gly Ile Asp Thr Asn 65 70 75 80

Ala Cys His Phe Met Lys Cys Pro Leu Val Lys Gly Gln Gln Tyr Asp 85 90 95

Ala Lys Tyr Thr Trp Asn Val Pro Lys Ile Ala Pro Lys Ser Glu Asn
100 105 110

Val Val Thr Val Lys Leu Val Gly Asp Asn Gly Val Leu Ala Cys 115 120 125

Ala Ile Ala Thr His Ala Lys Ile Arg Asp 130 135

<210> 175

<211> 129

<212> PRT

<213> Dermatophagoides farinae

<400> 175

Asp Gln Val Asp Val Lys Asp Cys Ala Asn Asn Glu Ile Lys Lys Val 1 5 10 15

Met Val Asp Gly Cys His Gly Ser Asp Pro Cys Ile Ile His Arg Gly

20 25 30

Lys Pro Phe Thr Leu Glu Ala Leu Phe Asp Ala Asn Gln Asn Thr Lys 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Leu Asp Gly Leu Glu Ile Asp 50 55 60

Val Pro Gly Ile Asp Thr Asn Ala Cys His Phe Val Lys Cys Pro Leu 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Ile Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg 115 120 125

Asp

<210> 176

<211> 129

<212> PRT

<213> Dermatophagoides farinae

<400> 176

Asp Gln Val Asp Val Lys Asp Cys Ala Asn Asn Glu Ile Lys Lys Val

1 10 15

Met Val Asp Gly Cys His Gly Ser Asp Pro Cys Ile Ile His Arg Gly 20 25 30

Lys Pro Phe Thr Leu Glu Ala Leu Phe Asp Ala Asn Gln Asn Thr Lys 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Leu Asp Gly Leu Glu Ile Asp 50 55 60

Val Pro Gly Ile Asp Thr Asn Ala Cys His Phe Met Lys Cys Pro Leu 65 70 75 80 Val Lys Gly Gln Gln Tyr Asp Ala Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Val Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg 115 120 125

Asp

<210> 177

<211> 145

<212> PRT

<213> Euroglyphus maynei

<400> 177

Met Tyr Lys Ile Leu Cys Leu Ser Leu Leu Val Ala Ala Val Ala Ala 1 5 10 15

Asp Gln Val Asp Ile Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val 20 25 30

Met Val Pro Gly Cys Lys Gly Ser Glu Pro Cys Val Ile His Arg Gly 35 40 45

Thr Ala Phe Gln Leu Glu Ala Val Phe Asp Ala Asn Gln Asn Ser Asn 50 55 60

Ala Ala Lys Ile Glu Ile Lys Ala Thr Ile Asp Gly Val Glu Ile Asp 65 70 75 80

Val Pro Gly Ile Asp Asn Asn Leu Cys His Phe Met Lys Cys Pro Leu 85 90 95

Val Lys Gly Gln Glu Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Arg 100  $\phantom{-}$  105  $\phantom{-}$  110

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Leu Gly
115 120 125

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg

135

130 140

Asp 145

<210> 178

<211> 135

<212> PRT

<213> Euroglyphus maynei

<400> 178

Val Ala Ala Val Ala Ala Asp Gln Val Asp Val Lys Asp Cys Ala Asn

His Glu Ile Lys Lys Val Met Val Pro Gly Cys Lys Gly Ser Glu Pro

Cys Val Ile His Arg Gly Thr Ala Phe Gln Leu Glu Ala Val Phe Asp 40

Ala Asn Gln Asn Ser Asn Ala Ala Lys Ile Glu Ile Lys Ala Thr Ile 55

Asp Gly Val Glu Ile Asp Val Pro Gly Ile Asp Asn Asn Leu Cys His 70

Phe Met Lys Cys Pro Leu Val Lys Gly Gln Glu Tyr Asp Ile Lys Tyr

Thr Trp Asn Val Pro Arg Ile Ala Pro Lys Ser Glu Asn Val Val

Thr Val Lys Leu Gly Asp Asn Gly Val Leu Ala Cys Ala Ile Ala 115 120

Thr His Ala Lys Ile Arg Asp 135

<210> 179

<211> 320

<212> PRT

<213> Dermatophagoides pteronyssinus

<400> 179

Met Lys Ile Val Leu Ala Ile Ala Ser Leu Leu Ala Leu Ser Ala Val 1 5 10 15

Tyr Ala Arg Pro Ser Ser Ile Lys Thr Phe Glu Glu Tyr Lys Lys Ala 20 25 30

Phe Asn Lys Ser Tyr Ala Thr Phe Glu Asp Glu Glu Ala Ala Arg Lys 35 40 45

Asn Phe Leu Glu Ser Val Lys Tyr Val Gln Ser Asn Gly Gly Ala Ile 50 55 60

Asn His Leu Ser Asp Leu Ser Leu Asp Glu Phe Lys Asn Arg Phe Leu 65 70 75 80

Met Ser Ala Glu Ala Phe Glu His Leu Lys Thr Gln Phe Asp Leu Asn 85 90 95

Ala Glu Thr Asn Ala Cys Ser Ile Asn Gly Asn Ala Pro Ala Glu Ile 100 105 110

Asp Leu Arg Gln Met Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly 115 120 125

Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala 130 135 140

Tyr Leu Ala Tyr Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu 145 150 155 160

Val Asp Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg 165 170 175

Gly Ile Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr 180 185 190

Arg Tyr Val Ala Arg Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg 195 200 205

Phe Gly Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys 210 215 220

Ile Arg Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile

Gly Ile Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Arg Thr Ile 245 250 255

Ile Gln Arg Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile 260 265 270

Val Gly Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn 275 280 285

Ser Trp Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala 290 295 300

Asn Ile Asp Leu Met Met Ile Glu Glu Tyr Pro Tyr Val Val Ile Leu 305 310 315 320

<210> 180

<211> 321

<212> PRT

<213> Euroglyphus maynei

<400> 180

Met Lys Ile Ile Leu Ala Ile Ala Ser Leu Leu Val Leu Ser Ala Val 1 5 10 15

Tyr Ala Arg Pro Ala Ser Ile Lys Thr Phe Glu Glu Phe Lys Lys Ala 20 25 30

Phe Asn Lys Thr Tyr Ala Thr Pro Glu Lys Glu Glu Val Ala Arg Lys
35 40 45

Asn Phe Leu Glu Ser Leu Lys Tyr Val Glu Ser Asn Lys Gly Ala Ile 50 55 60

Asn His Leu Ser Asp Leu Ser Leu Asp Glu Phe Lys Asn Gln Phe Leu 65 70 75 80

Met Asn Ala Asn Ala Phe Glu Gln Leu Lys Thr Gln Phe Asp Leu Asn 85 90 95

Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser Val Ser Leu Pro Ser Glu
100 105 110

Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly 115 120 125

Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ser Thr Glu Ser 130 \$135\$

Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu Asp Leu Ala Glu Gln Glu 145 150 155 160

Leu Val Asp Cys Ala Ser Gln Asn Gly Cys His Gly Asp Thr Ile Pro 165 170 175

Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Gln Glu His Tyr 180 185 190

Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys His Arg Pro Asn Ala Gln
195 200 205

Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile Ser Pro Pro Asp Ser Asn 210 215 220

Lys Ile Arg Gln Ala Leu Thr Gln Thr His Thr Ala Val Ala Val Ile 225 230 235 240

Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg His Tyr Asp Gly Arg Thr 245 250 255

Ile Met Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn 260 265 270

Ile Val Gly Tyr Gly Asn Thr Gln Gly Val Asp Tyr Trp Ile Val Arg 275 280 285

Asn Ser Trp Asp Thr Thr Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala 290 295 300

Ala Asn Ile Asn Leu Met Met Ile Glu Gln Tyr Pro Tyr Val Val Met 305 310 315 320

Leu

<210> 181

<211> 246

<212> PRT

<213> Euroglyphus maynei

<400> 181

Lys Asn Gln Phe Leu Met Asn Ala Asn Ala Phe Glu Gln Leu Lys Thr 1 5 10 15

Gln Phe Asp Leu Asn Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser Val 20 25 30

Ser Leu Pro Ser Glu Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro 35 40 45

Ile Arg Met Gln Gly Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly Val 50 55 60

Ala Ser Thr Glu Ser Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu Asp 65 70 75 80

Leu Ala Glu Glu Leu Val Asp Cys Ala Ser Gln Asn Gly Cys His
85 90 95

Gly Asp Thr Ile Pro Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val 100 \$105\$

Val Gln Glu His Tyr Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys His 115 120 125

Arg Pro Asn Ala Gln Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile Ser 130 135 140

Pro Pro Asp Ser Asn Lys Ile Arg Gln Ala Leu Thr Gln Thr His Thr 145 150 155 160

Ala Val Ala Val Ile Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg His 165 170 175

Tyr Asp Gly Arg Thr Ile Met Gln His Asp Asn Gly Tyr Gln Pro Asn 180 185 190

Tyr His Ala Val Asn Ile Val Gly Tyr Gly Asn Thr Gln Gly Val Asp 195 200 205 Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Trp Gly Asp Asn Gly 210 215 220

Tyr Gly Tyr Phe Ala Ala Asn Ile Asn Leu Met Met Ile Glu Gln Tyr 225 230 235 240

Pro Tyr Val Val Met Leu 245

<210> 182

<211> 327

<212> PRT

<213> Euroglyphus maynei

<400> 182

Lys His Leu Ser Thr Ile Met Lys Ile Ile Leu Ala Ile Ala Ser Leu 1 5 10 15

Leu Val Leu Ser Ala Val Tyr Ala Arg Pro Ala Ser Ile Lys Thr Phe 20 25 30

Glu Glu Phe Lys Lys Ala Phe Asn Lys Ser Tyr Ala Thr Pro Glu Lys 35 40 45

Glu Glu Val Ala Arg Lys Asn Phe Leu Glu Ser Leu Lys Tyr Val Glu 50 55 60

Ser Asn Lys Gly Ala Ile Asn His Leu Ser Asp Leu Ser Leu Asp Glu 65 70 75 80

Phe Lys Asn Gln Phe Leu Met Asn Ala Asn Ala Phe Glu Gln Leu Lys 85 90 95

Thr Gln Phe Asp Leu Asn Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser 100 105 110

Val Ser Leu Pro Ser Glu Leu Asp Leu Arg Ser Leu Arg Thr Val Thr
115 120 125

Pro Ile Arg Met Gln Gly Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly 130 135 140

Asp Leu Ala Glu Glu Leu Val Asp Cys Ala Ser Gln Asn Gly Cys 170 His Gly Asp Thr Ile Pro Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly 180 185 Val Val Gln Glu His Tyr Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys 200 His Arg Pro Asn Ala Gln Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile Ser Pro Pro Asp Ser Asn Lys Ile Arg Gln Ala Leu Thr Gln Thr His 225 230 235 Thr Ala Val Ala Val Ile Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg 245 250 His Tyr Asp Gly Arg Thr Ile Met Gln His Asp Asn Gly Tyr Gln Pro 260 265 Asn Tyr His Ala Val Asn Ile Val Gly Tyr Gly Asn Thr Gln Gly Val 275 280 Asp Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Thr Trp Gly Asp Asn 290 295 Gly Tyr Gly Tyr Phe Ala Ala Asn Ile Asn Leu Met Met Ile Glu Gln 305 315 310 320 Tyr Pro Tyr Val Val Ile Leu 325 <210> 183 <211> 321 <212> PRT <213> Dermatophagoides farinae <400> 183 Met Lys Phe Val Leu Ala Ile Ala Ser Léu Leu Ala Leu Ser Thr Val 5 10

Val Ala Ser Thr Glu Ser Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu

150

Tyr Ala Arg Pro Ala Ser Ile Lys Thr Phe Glu Glu Phe Lys Lys Ala Phe Asn Lys Asn Tyr Ala Thr Val Glu Glu Glu Val Ala Arg Lys Asn Phe Leu Glu Ser Leu Lys Tyr Val Glu Ala Asn Lys Gly Ala Ile Asn His Leu Ser Asp Leu Ser Leu Asp Glu Phe Lys Asn Arg Phe Leu Met Ser Ala Glu Ala Phe Glu Gln Leu Lys Thr Gln Phe Asp Leu Asn Ala Glu Thr Ser Ala Cys Arg Ile Asn Ser Val Asn Val Pro Ser Glu Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu Ala Tyr Arg Asn Thr Ser Leu Asp Leu Ser Glu Glu Glu Leu Val Asp Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Glu Glu Arg Ser Tyr Pro Tyr Val Ala Arg Glu Gln Arg Cys Arg Arg Pro Asn Ser Gln His Tyr Gly Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asp Val Lys Gln Ile Arg Glu Ala Leu Thr Gln Thr His Thr Ala Ile Ala Val Ile 

Ile Gly Ile Lys Asp Leu Arg Ala Phe Gln His Tyr Asp Gly Arg Thr 245 250 255

Ile Ile Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn 260 265 270

Ile Val Gly Tyr Gly Ser Thr Gln Gly Asp Asp Tyr Trp Ile Val Arg 275 280 285

Asn Ser Trp Asp Thr Thr Trp Gly Asp Ser Gly Tyr Gly Tyr Phe Gln 290 295 300

Ala Gly Asn Asn Leu Met Met Ile Glu Gln Tyr Pro Tyr Val Val Ile 305 310 315 320

Met

<210> 184

<211> 211

<212> PRT

<213> Euroglyphus maynei

<400> 184

Thr Tyr Ala Cys Ser Ile Asn Ser Val Ser Leu Pro Ser Glu Leu Asp 1 5 10 15

Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys
20 25 30

Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ser Thr Glu Ser Ala Tyr 35 40 45

Leu Ala Tyr Arg Asn Met Ser Leu Asp Leu Ala Glu Glu Leu Val 50 55 60

Asp Cys Ala Ser Gln Asn Gly Cys His Gly Asp Thr Ile Pro Arg Gly 65 70 75 80

Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Gln Glu His Tyr Tyr Pro
85 90 95

Tyr Val Ala Arg Glu Gln Ser Cys His Arg Pro Asn Ala Gln Arg Tyr

100 105 110

Gly Leu Lys Asn Tyr Cys Gln Ile Ser Pro Pro Asp Ser Asn Lys Ile 115 120 125

Arg Gln Ala Leu Thr Gln Thr His Thr Ala Val Ala Val Ile Ile Gly
130 135 140

Ile Lys Asp Leu Asn Ala Phe Arg His Tyr Asp Gly Arg Thr Ile Met 145 150 155 160

Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val 165 170 175

Gly Tyr Gly Asn Thr Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser 180 185 190

Trp Asp Thr Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn 195 200 205

Ile Asn Leu 210

<210> 185

<211> 210

<212> PRT

<213> Dermatophagoides farinae

<400> 185

Ser Ala Cys Arg Ile Asn Ser Val Asn Val Pro Ser Glu Leu Asp Leu 1 5 10 15

Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys Gly 20 25 30

Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu  $35 \hspace{1.5cm} 40 \hspace{1.5cm} 45$ 

Ala Tyr Arg Asn Thr Ser Leu Asp Leu Ser Glu Gln Glu Leu Val Asp 50 55 60

Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile
65 70 75 80

Glu Tyr Ile Gln Gln Asn Gly Val Val Glu Glu Arg Ser Tyr Pro Tyr 85 90 95

Val Ala Arg Glu Gln Gln Cys Arg Arg Pro Asn Ser Gln His Tyr Gly 100 105 110

Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asp Val Lys Gln Ile Arg 115 120 125

Glu Ala Leu Thr Gln Thr His Thr Ala Ile Ala Val Ile Ile Gly Ile 130 135 140

Lys Asp Leu Arg Ala Phe Gln His Tyr Asp Gly Arg Thr Ile Ile Gln 145 150 155 160

His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val Gly
165 170 175

Tyr Gly Ser Thr Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp 180 185 190

Asp Thr Trp Gly Asp Ser Gly Tyr Gly Tyr Phe Gln Ala Gly Asn 195 200 205

Asn Leu 210

<210> 186

<211> 312

<212> PRT

<213> Phleum pratense

<400> 186

Met Ala Val His Gln Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Gly Ser Tyr Ala Ala Asp Leu Gly Tyr Gly Pro 20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Thr Pro Ala 35 40 45

Ala Pro Ala Gly Ala Glu Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln

50

- Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Leu Ala Ala 65 70 75 80
- Ala Ala Gly Val Pro Pro Ala Asp Lys Tyr Arg Thr Phe Val Ala Thr 85 90 95
- Phe Gly Ala Ala Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Gly Glu
  100 105 110
- Pro Lys Gly Ala Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys 115 120 125
- Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr 130 135 140
- Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala 165 170 175
- Glu Glu Val Lys Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys 180 185 190
- Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro 195 200 205
- Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile 210 215 220
- Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala 225 230 230 235 240
- Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala 245 250 255
- Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile 260 265 270
- Thr Ala Met Ser Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala 275 280 285

Thr Ala Thr Ala Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr 290 295 300

Ala Ala Thr Gly Gly Tyr Lys Val 305 310

<210> 187

<211> 312

<212> PRT

<213> Phleum pratense

<400> 187

Met Ala Val His Gln Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Leu Gly Tyr Gly Pro 20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Thr Pro Ala 35 40 45

Ala Pro Ala Glu Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln 50 55 60

Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Leu Ala Ala 65 70 75 80

Ala Ala Gly Val Gln Pro Ala Asp Lys Tyr Arg Thr Phe Val Ala Thr 85 90 95

Phe Gly Ala Ala Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Gly Glu 100 105 110

Pro Lys Gly Ala Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys 115 120 125

Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr 130 135 140

Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala 165 170 175

Glu Glu Val Lys Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys 180 185 190

Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro 195 200 205

Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile 210 215 220

Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala 225 230 235 240

Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala 245 250 255

Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile 260 265 270

Thr Ala Met Ser Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala 275 280 285

Thr Ala Thr Ala Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr 290 295 300

Ala Ala Thr Gly Gly Tyr Lys Val 305 310

<210> 188

<211> 286

<212> PRT

<213> Phleum pratense

<400> 188

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
1 10 15

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Asp Ala Ala Gly 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly 35 40 45

- Phe Lys Ala Ala Leu Ala Gly Ala Gly Val Gln Pro Ala Asp Lys Tyr 50 55 60
- Arg Thr Phe Val Ala Thr Phe Gly Pro Ala Ser Asn Lys Ala Phe Ala 65 70 75 80
- Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser Lys 85 90 95
- Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys 100 105 110
- Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala 115 120 125
- Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val His 130 135 140
- Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala Thr 165 170 175
- Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ala 180 185 190
- Ala Phe Asn Asp Glu Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser 195 200 205
- Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala 210 215 220
- Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu Thr 225 230 235 240
- Ala Leu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Gln Lys Ala Ala 245 250 255
- Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly Ala 260 265 270

Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285

<210> 189

<211> 333

<212> PRT

<213> Poa pratensis

<400> 189

Met Ala Val His Gln Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Val Gly Tyr Gly Ala 20 25 30

Pro Ala Thr Leu Ala Thr Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly 35 40 45

Tyr Thr Pro Ala Ala Pro Ala Gly Ala Ala Pro Lys Ala Thr Thr Asp 50 55 60

Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Val 65 70 75 80

Ala Ala Ala Gly Val Pro Ala Val Asp Lys Tyr Lys Thr Phe Val 85 90 95

Ala Thr Phe Gly Thr Ala Ser Asn Lys Ala Phe Ala Glu Ala Leu Ser 100 105 110

Thr Glu Pro Lys Gly Ala Ala Ala Ala Ser Ser Asn Ala Val Leu Thr 115 120 125

Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Ser Ala Glu Gly 130 135 140

Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu 145 150 155 160

Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro 165 170 175

Ala Gly Glu Glu Val Lys Ala Ile Pro Ala Gly Glu Leu Gln Val Ile

180 185 190

Asp Lys Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala 195 200 205

Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp 210 215 220

Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Gln Ser Tyr Lys Phe Ile 225 230 235 240

Pro Ala Leu Glu Ala Ala Val Lys Gln Ser Tyr Ala Ala Thr Val Ala 245 250 255

Thr Ala Pro Ala Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys 260 265 270

Ala Ile Thr Ala Met Ser Gln Ala Gln Lys Ala Ala Lys Pro Ala Ala 275 280 285

Ala Val Thr Ala Thr Ala Thr Gly Ala Val Gly Ala Ala Thr Gly Ala 290 295 300

Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Ala Gly Gly Tyr Lys 305 310 315 320

Thr Gly Ala Ala Thr Pro Thr Ala Gly Gly Tyr Lys Val

<210> 190

<211> 307

<212> PRT

<213> Poa pratensis

<400> 190

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Val Ala Leu Val 1 5 10 15

Val Gly Pro Ala Ala Ser Tyr Ala Ala Asp Leu Ser Tyr Gly Ala Pro
20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Ala Pro Ala 35 40 45

- Gly Ala Ala Pro Lys Ala Thr Thr Asp Glu Gln Lys Met Ile Glu Lys 50 55 60
- Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Gly Gly Val Pro 70 75 80
- Ala Ala Asn Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala Ser 85 90 95
- Asn Lys Ala Phe Ala Glu Ala Leu Ser Thr Glu Pro Lys Gly Ala Ala 100 105 110
- Val Asp Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr 115 120 125
- Lys Leu Ala Tyr Lys Ser Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr 130 135 140
- Asp Asp Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala Gly
  145 150 155 160
- Thr Leu Glu Val His Gly Val Lys Pro Ala Ala Glu Glu Val Lys Ala 165 170 175
- Thr Pro Ala Gly Glu Leu Gln Val Ile Asp Lys Val Asp Ala Ala Phe 180 185 190
- Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe 195 200 205
- Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly 210 215 220
- Gly Ala Tyr Gln Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val 225 230 235 240
- Lys Gln Ser Tyr Ala Ala Thr Val Ala Thr Ala Pro Ala Val Lys Tyr 245 250 255
- Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser Gln 260 265 270

Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala Thr Gly Thr Ala Thr 275 280 285

Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Gly Gly 290 295 300

Tyr Lys Val

<210> 191

<211> 276

<212> PRT

<213> Phleum pratense

<400> 191

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu

1 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Gly Val 35 40 45

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80

Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala 85 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys 100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys
130 135 140

Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala 145 150 155 160 Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr 180 185 190

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205

Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220

Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser 225 230 235 240

Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala 245 250 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly 260 265 270

Gly Tyr Lys Val 275

<210> 192

<211> 276

<212> PRT

<213> Phleum pratense

<400> 192

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu

1 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Gly Val 35 40 45

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80

Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala 85 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys 100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys 130 135 140

Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala 145 150 155 160

Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr 180 185 190

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205

Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220

Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser 225 230 235 235

Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala 245 250 255

Thr Ser Ala Val Gly Ala Ala Thr Gly Ala Thr Thr Ala Ala Gly 260 265 270

Gly Tyr Lys Val 275

<210> 193

- <211> 276
- <212> PRT
- <213> Phleum pratense
- <400> 193
- Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu 1 5 10 15
- Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30
- Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val 35 40 45
- Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60
- Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80
- Ala Glu Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala 85 90 95
- Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys
  100 105 110
- Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125
- Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys 130 135 140
- Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala 145 150 155 160
- Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175
- Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr 180 185 190
- Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205

Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220

Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Phe Thr Ala Met Ser 225 230 235 240

Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala 245 250 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly 260 265 270

Gly Tyr Lys Val 275

<210> 194

<211> 276

<212> PRT

<213> Phleum pratense

<400> 194

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu

1 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Gly Val 35 40 45

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80

Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala 85 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Glu 100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala

115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys 130 135 140

Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala 145 150 155 160

Leu Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr 180 185 190

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205

Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220

Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Thr Ser 225 230 235 240

Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala 245 250 . 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly 260 265 270

Gly Tyr Lys Val 275

<210> 195

<211> 276

<212> PRT

<213> Phleum pratense

<400> 195

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu

1 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu
20 25 30

- Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val 35 40 45
- Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala 50 55 60
- Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala 65 70 75 80
- Ala Glu Ser Ser Lys Gly Ala Leu Thr Ser Lys Leu Glu Ala Ala 85 90 95
- Tyr Lys Leu Ala Tyr Lys Thr Ser Glu Gly Ala Thr Pro Glu Ala Lys
- Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala 115 120 125
- Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys 130 135 140
- Val Ile Pro Ala Gly Glu Leu Gln Phe Ile Glu Lys Val Asp Ser Ala 145 150 155 160
- Leu Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 165 170 175
- Phe Thr Val Phe Glu Ala Ala Phe Asn His Ala Ile Lys Ala Ser Thr 180 185 190
- Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala 195 200 205
- Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys 210 215 220
- Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser 225 230 235 235
- Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala 245 250 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly 260 265 270

Gly Tyr Lys Val 275

<210> 196

<211> 373

<212> PRT

<213> Poa pratensis

<400> 196

Met Asp Lys Ala Asn Gly Ala Tyr Lys Thr Ala Leu Lys Ala Ala Ser 1 5 10 15

Ala Val Ala Pro Ala Glu Lys Phe Pro Val Phe Gln Ala Thr Phe Asp 20 25 30

Lys Asn Leu Lys Glu Gly Leu Ser Gly Pro Asp Ala Val Gly Phe Ala 35 40 45

Lys Lys Leu Asp Ala Phe Ile Gln Thr Ser Tyr Leu Ser Thr Lys Ala 50 55 60

Ala Glu Pro Lys Glu Lys Phe Asp Leu Phe Val Leu Ser Leu Thr Glu 65 70 75 80

Val Leu Arg Phe Met Ala Gly Ala Val Lys Ala Pro Pro Ala Ser Lys 85 90 95

Phe Pro Ala Lys Pro Ala Pro Lys Val Ala Ala Tyr Thr Pro Ala Ala 100 105 110

Pro Ala Gly Ala Ala Pro Lys Ala Thr Thr Asp Glu Gln Lys Leu Ile 115 120 125

Glu Lys Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Gly 130 135 140

Val Pro Ala Ala Ser Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala 145 150 155 160

Ala Ser Asn Lys Ala Phe Ala Glu Ala Leu Ser Thr Glu Pro Lys Gly
165 170 175

Ala Ala Val Ala Ser Ser Lys Ala Val Leu Thr Ser Lys Leu Asp Ala 180 185 190

Ala Tyr Lys Leu Ala Tyr Lys Ser Ala Glu Gly Ala Thr Pro Glu Ala 195 200 205

Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile 210 215 220

Ala Gly Thr Leu Glu Val His Gly Val Lys Pro Ala Ala Glu Glu Val 225 230 235 240

Lys Ala Ile Pro Ala Gly Glu Leu Gln Val Ile Asp Lys Val Asp Ala 245 250 255

Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp 260 265 270

Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser 275 280 285

Thr Gly Gly Ala Tyr Gln Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala 290 295 300

Ala Val Lys Gln Ser Tyr Ala Ala Thr Val Ala Thr Ala Pro Ala Val 305 310 315 320

Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met 325 330 335

Ser Gln Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Val Thr Gly Thr 340 345 350

Ala Thr Ser Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Ala 355 360 365

Gly Gly Tyr Lys Val 370

<210> 197

<211> 339

<212> PRT

<213> Lolium perenne

<400> 197

Met Ala Val Gln Lys His Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro 20 25 30

Ala Thr Pro Ala Thr Pro Ala Ala Pro Ala Thr Ala Ala Thr Pro Ala 35 40 45

Thr Pro Ala Thr Pro Ala Thr Pro Ala Ala Val Pro Ser Gly Lys Ala 50 55 60

Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys 65 70 75 80

Ala Ala Val Ala Ala Ala Val Val Pro Pro Ala Asp Lys Tyr Lys 85 90 95

Thr Phe Val Glu Thr Phe Gly Thr Ala Thr Asn Lys Ala Phe Val Glu
100 105 110

Gly Leu Ala Ser Gly Tyr Ala Asp Gln Ser Lys Asn Gln Leu Thr Ser 115 120 125

Lys Leu Asp Ala Ala Leu Lys Leu Ala Tyr Glu Ala Ala Gln Gly Ala 130 135 140

Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Thr Glu Ala
145 150 155 160

Leu Arg Val Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala 165 170 175

Ala Glu Glu Val Lys Val Gly Ala Ile Pro Ala Ala Glu Val Gln Leu 180 185 190

Ile Asp Lys Val Asp Ala Ala Tyr Arg Thr Ala Ala Thr Ala Ala Asn 195 200 205

Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Asn Thr Phe Asn

210 215 220

Asn Ala Ile Lys Val Ser Leu Gly Ala Ala Tyr Asp Ser Tyr Lys Phe 225 230 235 240

Ile Pro Thr Leu Val Ala Ala Val Lys Gln Ala Tyr Ala Ala Lys Gln 245 250 255

Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Ser Glu Thr Ala Leu Lys 260 265 270

Lys Ala Val Thr Ala Met Ser Glu Ala Glu Lys Glu Ala Thr Pro Ala 275 280 285

Ala Ala Ala Thr Ala Thr Pro Thr Pro Ala Ala Ala Thr Ala Thr Ala 290 295 300

Thr Pro Ala Ala Ala Tyr Ala Thr Ala Thr Pro Ala Ala Ala Thr Ala 305 310 315 320

Thr Ala Thr Pro Ala Ala Ala Thr Ala Thr Pro Ala Ala Ala Gly Gly 325 330 335

Tyr Lys Val

<210> 198

<211> 301

<212> PRT

<213> Lolium perenne

<400> 198

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Thr Pro
20 25 30

Ala Ala Ala Ala Thr Pro Ala Thr Pro Ala Ala Thr Pro Ala Ala Ala 35 40 45

Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn 50 55 60

Asp Lys Phe Lys Ile Phe Glu Ala Ala Phe Ser Glu Ser Ser Lys Gly Leu Leu Ala Thr Ser Ala Ala Lys Ala Pro Gly Leu Ile Pro Lys Leu Asp Thr Ala Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Phe Val Thr Ala Leu Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu Val Pro Ala Ala Lys Ile Pro Thr Gly Glu Leu Gln Ile Val Asp Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala Pro Thr Asn Asp Lys Phe Thr Val Phe Glu Ser Ala Phe Asn Lys Ala Leu Asn Glu Cys Thr Gly Gly Ala Tyr Glu Thr Tyr Lys Phe Ile Pro Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Thr Gln Ala Gln Lys Ala Gly Lys Pro Ala Ala Ala 

Ala Ala Thr Gly Ala Ala Thr Val Ala Thr Gly Ala Ala Thr Ala Ala 275 280 285

Ala Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Asn Ala Pro Pro Ala

Ala Gly Ala Ala Thr Ala Ala Gly Gly Tyr Lys Ala 290 295 300

<210> 199

<211> 301

<212> PRT

<213> Lolium perenne

<400> 199

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Asp Ser Tyr Ala Ala Asp Ala Gly Tyr Thr Pro
20 25 30

Ala Ala Ala Thr Pro Ala Thr Pro Ala Ala Thr Pro Ala Ala Gly 35 40 45

Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn 50 55 60

Ala Gly Phe Lys Ala Ala Val Ala Ala Asp Ala Asn Ala Pro Pro Ala 65 70 75 80

Asp Lys Phe Lys Ile Phe Glu Ala Ala Phe Ser Glu Ser Cys Lys Gly 85 90 95

Leu Leu Ala Thr Ser Asp Ala Lys Ala Pro Gly Leu Ile Leu Lys Leu 100 105 110

Asp Thr Asp Tyr Asp Val Ala Tyr Lys Ala Gly Glu Gly Ala Thr Pro
115 120 125

Glu Ala Lys Tyr Asp Ala Phe Val Thr Ala Leu Thr Glu Ala Leu Arg
130 135 140

Val Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu 145 150 155 160

Glu Val Pro Ala Ala Lys Ile Pro Thr Gly Glu Leu Gln Ile Val Asp 165 170 175

Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala 180 185 190

Pro Thr Asn Asp Lys Phe Thr Val Phe Glu Ser Ala Phe Asn Lys Ala 195 200 205

Leu Lys Glu Cys Thr Gly Gly Ala Tyr Glu Thr Tyr Lys Phe Ile Pro 210 215 220

Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Thr Thr Val Ala Ala 225 230 235 240

Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala 245 250 255

Ile Thr Ala Met Ser Gln Ala Gln Lys Val Ala Lys Pro Ala Ala Ala 260 265 270

Ala Ala Thr Gly Ala Ala Thr Val Ala Thr Gly Ala Ala Thr Ala Ala 275 280 285

Ala Gly Gly Ala Thr Ala Ala Gly Gly Tyr Lys Ala 290 295 300

<210> 200

<211> 290

<212> PRT

<213> Phleum pratense

<400> 200

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro 20 25 30

Ala Thr Pro Ala Ala Ala Gly Ala Glu Ala Gly Lys Ala Thr Thr Glu
35 40 45

Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly Phe Lys Ala Ala Val 50 55 60

Ala Ala Ala Ser Val Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu 65 70 75 80 Ala Ala Phe Thr Ser Ser Ser Lys Ala Ala Thr Ala Lys Ala Pro Gly 85 90 95

Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val Ala Tyr Lys Ala Ala 100 105 110

Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser Phe Val Ala Ser Leu 115 120 125

Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu Glu Val His Ala Val 130 135 140

Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe Lys Val Ala Ala Thr 165 170 175

Ala Ala Ala Thr Ala Pro Ala Asp Asp Lys Phe Thr Val Phe Glu Ala 180 185 190

Ala Phe Asn Lys Ala Ile Lys Glu Ser Thr Gly Gly Ala Tyr Asp Thr 195 200 205

Tyr Lys Cys Ile Pro Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala 210 215 220

Ala Thr Val Ala Ala Ala Pro Gln Val Lys Tyr Ala Val Phe Glu Ala 225 230 235 240

Ala Leu Thr Lys Ala Ile Thr Ala Met Ser Glu Val Gln Lys Val Ser 245 250 255

Gln Pro Ala Thr Gly Ala Ala Thr Val Ala Ala Gly Ala Ala Thr Thr 260 265 270

Ala Thr Gly Ala Ala Ser Gly Ala Ala Thr Val Ala Ala Gly Gly Tyr 275 280 285

Lys Val 290

<210> 201

<211> 264

<212> PRT

<213> Holcus lanatus

<400> 201

Ala Asp Ala Gly Tyr Thr Pro Ala Ala Pro Ala Ala Ala Gly Ala Gly
1 5 10 15

Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn Ala 20 25 30

Gly Phe Lys Thr Ala Val Ala Ala Ala Ala Asn Val Pro Pro Ala Asp 35 40 45

Lys Tyr Lys Thr Phe Glu Ala Ala Phe Thr Ala Ser Ser Lys Ala Ser 50 55 60

Ile Ala Ala Ala Thr Lys Ala Pro Gly Leu Ile Pro Gln Leu Asn
65 70 75 80

Ala Ala Thr Asn Thr Ala Tyr Ala Ala Gln Gly Ala Thr Pro Glu 85 90 95

Ala Lys Tyr Asp Ala Phe Val Thr Thr Leu Thr Glu Ala Leu Arg Val 100 105 110

Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu 115 120 125

Val Gly Ala Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Val Asp Lys 130 135 140

Ile Asp Ala Ala Phe Arg Ile Ala Ala Thr Ala Ala Asn Ala Ala Pro 145 150 155 160

Val Asn Asp Lys Phe Thr Val Phe Glu Gly Ala Phe Asn Lys Ala Ile 165 170 175

Lys Glu Ser Thr Gly Gly Ala Tyr Glu Ala Tyr Lys Phe Ile Pro Ser 180 185 190

Leu Glu Thr Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala 195 200 205 Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile 210 215 220

Thr Ala Met Ser Glu Ala Gln Lys Glu Ala Lys Pro Val Ala Ala 225 230 235 240

Thr Gly Ala Ala Thr Ala Ala Gly Val Ala Ala Gly Ala Ala Thr 245 250 255

Ala Ala Ala Gly Gly Tyr Lys Val 260

<210> 202

<211> 287

<212> PRT

<213> Phleum pratense

<400> 202

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro
20 25 30

Ala Thr Pro Ala Ala Ala Gly Ala Glu Ala Gly Lys Ala Thr Thr Glu 35 40 45

Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly Phe Lys Ala Ala Val 50 55 60

Ala Ala Ala Ser Val Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu 65 70 75 80

Ala Ala Phe Thr Ser Ser Ser Lys Ala Ala Thr Ala Lys Ala Pro Gly 85 90 95

Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val Ser Tyr Lys Ala Ala 100 105 110

Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser Phe Val Ala Ser Leu 115 120 125

Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu Glu Val His Ala Val

130 135 140

Lys Pro Val Thr Glu Glu Pro Gly Met Ala Lys Ile Pro Ala Gly Glu 145 150 155 160

Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe Lys Val Ala Ala Thr 165 170 175

Ala Ala Ala Thr Ala Pro Ala Asp Thr Val Phe Glu Ala Ala Phe Asn 180 185 190

Lys Ala Ile Lys Glu Ser Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys 195 200 205

Ile Pro Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val 210 215 220

Ala Ala Pro Gln Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr 225 230 235 240

Lys Ala Ile Thr Ala Met Ser Glu Val Gln Lys Val Ser Gln Pro Ala 245 250 255

Thr Gly Ala Ala Thr Val Ala Ala Gly Ala Ala Thr Thr Ala Ala Gly 260 265 270

Ala Ala Ser Gly Ala Ala Thr Val Ala Ala Gly Gly Tyr Lys Val 275 280 285

<210> 203

<211> 296

<212> PRT

<213> Holcus lanatus

<400> 203

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Thr Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro
20 25 30

Thr Thr Pro Ala Ala Ala Gly Ala Ala Gly Lys Ile Thr Pro Thr 35 40 45

- Gln Glu Gln Lys Leu Met Glu Asp Ile Asn Val Gly Phe Lys Ala Ala 50 55 60
- Val Ala Ala Ala Ala Gly Ala Pro Pro Ala Asp Lys Phe Lys Thr Phe 65 70 75 80
- Gln Ala Ala Phe Ser Ala Ser Val Glu Ala Ser Ala Ala Lys Leu Asn 85 90 95
- Ala Ala Gln Ala Pro Gly Phe Val Ser His Val Ala Ala Thr Ser Asp 100 105 110
- Ala Thr Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp 115 120 125
- Ser Phe Val Ala Ala Phe Thr Glu Ala Leu Arg Val Ile Ala Gly Val 130 135 140
- Leu Lys Val His Ala Val Lys Pro Ile Thr Glu Glu Ile Gly Ala Ala 145 150 155 160
- Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala 165 170 175
- Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
  180 185 190
- Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Glu Ser Thr 195 200 205
- Gly Gly Ala Tyr Asp Thr Tyr Lys Ser Ile Pro Ser Leu Glu Ala Ala 210 215 220
- Val Lys Gln Ala Tyr Ala Ala Thr Ile Ala Ala Ala Pro Glu Val Lys 225 230 235 240
- Phe Ala Val Phe Lys Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ala 245 250 255
- Glu Val Gln Lys Val Ser Lys Pro Val Ala Gly Ala Ala Thr Ala Ala 260 265 270

Thr Gly Ala Ala Thr Gly Ala Ala Gly Ala Ala Thr Gly Ala Ala Thr 275 280 285

Val Ser Ala Gly Gly Tyr Lys Val 290 295

<210> 204

<211> 303

<212> PRT

<213> Poa pratensis

<400> 204

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Thr Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Tyr Ala Pro
20 25 30

Ala Thr Pro Ala Ala Ala Gly Ala Ala Gly Lys Ile Thr Pro Thr
35 40 45

Gln Glu Gln Lys Leu Met Glu Asp Ile Asn Val Gly Phe Lys Ala Ala 50 55 60

Val Ala Ala Ala Ala Gly Ala Pro Pro Ala Asp Lys Phe Lys Thr Phe 65 70 75 80

Gln Ala Ala Phe Ser Ala Ser Val Glu Ala Ser Ala Ala Lys Leu Asn 85 90 95

Ala Ala Gln Ala Pro Gly Phe Val Ser His Val Ala Ala Thr Ser Asp 100 105 110

Ala Thr Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp 115 120 125

Ser Phe Val Ala Ala Phe Thr Glu Ala Leu Arg Ile Ile Ala Gly Val 130 135 140

Leu Lys Val His Ala Val Lys Pro Ile Thr Glu Glu Thr Gly Ala Ala 145 150 155 160

Lys Ile Pro Ala Gly Glu Gln Gln Ile Ile Asp Lys Ile Asp Ala Ala 165 170 175 Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
180 185 190

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Glu Ser Thr 195 200 205

Gly Gly Ala Tyr Asp Thr Tyr Lys Ser Ile Pro Ser Leu Glu Ala Ala 210 215 220

Val Lys Gln Ala Tyr Ala Ala Thr Ile Ala Ala Ala Pro Glu Val Lys 225 230 235 240

Phe Ala Val Phe Lys Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ala 245 250 255

Glu Val Gln Lys Val Ser Lys Pro Val Ala Gly Ala Ala Thr Val Ala 260 265 270

Ala Gly Ala Ala Thr Ala Ala Thr Gly Ala Ala Thr Gly Ala Ala Gly
275 280 285

Ala Ala Thr Gly Ala Ala Thr Val Ser Ala Gly Gly Tyr Lys Val 290 295 300

<210> 205

<211> 295

<212> PRT

<213> Phleum pratense

<400> 205

Ser Val Lys Arg Ser Asn Gly Ser Ala Glu Val His Arg Gly Ala Val 1 5 10 15

Pro Arg Gly Pro Arg Gly Gly Pro Gly Arg Ser Tyr Ala Ala Asp 20 25 30

Ala Gly Tyr Ala Pro Ala Thr Pro Ala Ala Gly Ala Glu Ala Gly 35 40 45

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly 50 55 60

Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val Pro Ala Ala Asp Lys 80

Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser 90 Ser Lys Ala Ala Thr 95

Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val 100 105 110

Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser 115 120 125

Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu 130 135 140

Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met Ala Lys 145 150 155 160

Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe 165 170 175

Lys Val Ala Ala Thr Ala Ala Thr Ala Pro Ala Asp Asp Lys Phe 180 185 190

Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser Thr Gly
195 200 205

Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala Ala Val 210 215 220

Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Pro Gln Val Lys Tyr 225 230 235 240

Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ser Glu 245 250 255

Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val Ala Ala 260 265 270

Gly Ala Ala Thr Thr Ala Ala Gly Ala Ala Ser Gly Ala Ala Thr Val 275 280 285

Ala Ala Gly Gly Tyr Lys Val

290 295

<210> 206

<211> 281

<212> PRT

<213> Phleum pratense

<400> 206

Ala Val Pro Arg Gly Pro Arg Gly Gly Pro Gly Arg Ser Tyr Ala

10 15

Ala Asp Ala Gly Tyr Ala Pro Ala Thr Pro Ala Ala Ala Gly Ala Glu 20 25 30

Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn 35 40 45

Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val Pro Ala Gly 50 55 60

Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser Ser Lys Ala 65 70 75 80

Ala Thr Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr 85 90 95

Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe 100 105 110

Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly 115 120 125

Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met
130 140

Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala 145 150 155 160

Ala Phe Lys Val Ala Ala Thr Ala Ala Thr Ala Pro Ala Asp Asp 165 170 175

Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser 180 185 190 Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala 195 200 205

Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Gln Val 210 215 220

Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met 225 230 235 240

Ser Glu Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val 245 250 255

Ala Ala Gly Ala Ala Thr Thr Ala Thr Gly Ala Ala Ser Gly Ala Ala 260 265 270

Thr Val Ala Ala Gly Gly Tyr Lys Val 275 280

<210> 207

<211> 284

<212> PRT

<213> Phleum pratense

<400> 207

Ala Ala Ala Val Pro Arg Gly Pro Arg Gly Gly Pro Gly Arg

1 10 15

Ser Tyr Thr Ala Asp Ala Gly Tyr Ala Pro Ala Thr Pro Ala Ala Ala 20 25 30

Gly Ala Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu 35 40 45

Asp Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val 50 55 60

Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser 65 70 75 80

Ser Lys Ala Ala Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp 85 90 95

Ala Ala Tyr Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu

100 105 110

Ala Lys Phe Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val 115 120 125

Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu 130 135 140

Pro Gly Met Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys 145 150 155 160

Ile Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Thr Ala Pro 165 170 175

Ala Asp Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile 180 185 190

Lys Glu Ser Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser 195 200 205

Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala 210 215 220

Pro Gln Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile 225 230 235 240

Thr Ala Met Ser Glu Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala 245 250 255

Ala Thr Val Ala Ala Gly Ala Ala Thr Thr Ala Ala Gly Ala Ala Ser 260 265 270

Gly Ala Ala Thr Val Ala Ala Gly Gly Tyr Lys Val 275 280

<210> 208

<211> 266

<212> PRT

<213> Phleum pratense

<400> 208

Ala Asp Ala Gly Tyr Ala Pro Ala Thr Pro Ala Ala Ala Gly Ala Glu

5 10 15

- Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn 20 25 30
- Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val Pro Ala Ala 35 40 45
- Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser Ser Lys Ala 50 55 60
- Ala Thr Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr 65 70 75 80
- Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe 85 90 95
- Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly
  100 105 110
- Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met 115 120 125
- Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala 130 135 140
- Ala Phe Lys Val Ala Ala Thr Ala Ala Ala Thr Ala Pro Ala Asp Asp 145 150 155 160
- Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser 165 170 175
- Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala 180 185 190
- Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Gln Val 195 200 205
- Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met 210 215 220
- Ser Glu Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val 225 230 235 240

Ala Ala Gly Ala Ala Thr Gly Thr Ala Ala Gly Ala Ala Ser Gly Ala 245 250 255

Ala Thr Val Ala Ala Gly Gly Tyr Lys Val 260 265

<210> 209

<211> 240

<212> PRT

<213> Phleum pratense

<400> 209

Gln Lys Leu Leu Glu Asp Val Asn Ala Ser Phe Lys Ala Ala Val Ala 1 5 10 15

Ala Ala Ala Lys Val Pro Pro Ala Asp Lys Tyr Lys Thr Phe Leu Arg 20 25 30

Ala Phe Thr Val Leu Asp Arg Gly Ser Thr Glu Gln Ser Lys Ala Glu 35 40 45

Glu Thr Lys Met Pro Glu Leu Ser Ser Lys Leu Val Asp Ala Tyr Met 50 55 60

Ala Ala Phe Lys Ala Ser Thr Gly Gly Thr Gln Glu Ala Lys Tyr Asp
65 70 75 80

Ala Phe Val Thr Thr Leu Thr Glu Ala Leu Arg Val Ile Ala Gly Ala 85 90 95

Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu Val Pro Ala Ala 100 105 110

Lys Ile Pro Ala Gly Asp Leu Gln Val Val Asp Lys Ile Asp Ala Ser 115 120 125

Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys 130 135 140

Phe Thr Val Phe Glu Thr Ala Phe Asn Lys Ala Leu Lys Glu Ser Thr 145 150 155 160

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ser Leu Glu Ala Ala 165 170 175 Val Lys Gln Ala Tyr Ala Ser Thr Val Ala Ala Ala Pro Glu Val Lys 180 185 190

Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ser 195 200 205

Gln Ala Gln Lys Val Ala Gln Pro Ala Ala Ala Ala Thr Gly Ala Ala 210 215 220

Thr Val Ala Ala Gly Ala Ala Thr Thr Ala Ala Gly Gly Tyr Lys Val 225 230 235 240

<210> 210

<211> 294

<212> PRT

<213> Phalaris aquatica

<400> 210

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Ala Met Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Ala Gly Thr Pro Pro
20 25 30

Thr Pro Ala Thr Pro Ala Val Pro Gly Ala Ala Ala Gly Lys Ala Thr 35 40 45

Thr His Glu Gln Lys Leu Ile Glu Asp Ile Asn Ala Ala Phe Lys Trp 50 55 60

Trp Pro Ala Ser Ala Pro Pro Ala Asp Lys Tyr Lys Thr Phe Glu Thr 65 70 75 80

Ala Phe Ser Lys Ala Asn Ile Ala Gly Ala Ser Thr Lys Gly Leu Asp
85 90 95

Ala Ala Tyr Ser Val Val Tyr Asn Thr Ala Ala Gly Ala Thr Pro Glu 100 105 110

Ala Lys Tyr Asp Ser Phe Val Thr Ala Leu Thr Glu Ala Leu Arg Ile 115 120 125 Met Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu 130 135 140

Glu Val Pro Ser Ala Lys Ile Leu Arg Ala Asn Ser Arg Ser Ser Thr 145 150 155 160

Arg Ser Ser Arg Phe Lys Ile Ala Ala Thr Val Ala Thr Pro Leu Ser 165 170 175

His Ser Thr Ala Ala Asn Ser Ala Pro Ala Asn Asp Lys Phe Thr Val 180 185 190

Phe Glu Gly Ala Phe Asn Lys Ala Ile Lys Glu Arg His Gly Gly Pro 195 200 205

Thr Glu Thr Tyr Lys Phe Ile Pro Ser Leu Glu Ala Ala Val Lys Gln 210 215 220

Ala Tyr Gly Ala Thr Val Ala Arg Ala Pro Glu Val Lys Tyr Ala Val 225 230 235 240

Phe Glu Ala Gly Leu Thr Lys Ala Ile Thr Ala Met Ser Glu Ala Gln
245 250 255

Lys Val Ala Lys Pro Val Arg Leu Ser Pro Gln Pro Pro Gln Val Leu 260 265 270

Pro Leu Ala Ala Gly Gly Ala Ala Thr Val Ala Ala Ala Ser Asp Ser 275 280 285

Arg Gly Gly Tyr Lys Val 290

<210> 211

<211> 320

<212> PRT

<213> Phalaris aquatica

<400> 211

Met Ala Val Gln Lys Tyr Thr Met Ala Leu Phe Leu Ala Val Ala Leu 1 5 10 15

Val Ala Gly Pro Ala Ala Pro Thr Pro Pro Thr Pro Arg Thr Pro Pro
20 25 30

- Leu Leu Pro Pro Pro Arg Ala Arg Asp Lys Ala Thr Leu Thr Ser Arg 35 40 45
- Ser Val Glu Asp Ile Asn Ala Ala Ser Arg Arg Pro Trp Trp Ala Ser 50 55 60
- Val Pro Pro Ala Asp Lys Phe Lys Thr Phe Ala Asp His Val Leu Cys 70 75 80
- Val Pro Asn Ala Asp Val Thr Ser Ala Ala Thr Lys Ala Pro Gln Leu 85 90 95
- Lys Ala Lys Leu Asp Ala Ala Tyr Arg Val Ala Tyr Glu Ala Ala Glu 100 105 110
- Gly Ser Thr Pro Glu Ala Lys Tyr Asp Ala Phe Ile Ala Ala Leu Thr 115 120 125
- Glu Ala Leu Arg Val Ile Ala Gly Ala Phe Glu Val His Ala Val Lys 130 135 140
- Pro Ala Thr Glu Glu Val Val Ala Asp Pro Val Gly Glu Leu Gln Ile 145 150 155 160
- Val Asp Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn 165 170 175
- Ser Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Gly Ala Phe Asn 180 185 190
- Lys Ala Ile Lys Glu Ser Thr Ala Gly Ala Tyr Glu Thr Tyr Lys Phe 195 200 205
- Ile Pro Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Gly Ala Thr Val 210 215 220
- Ala Arg Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Gly Leu Thr 225 230 235 240
- Lys Ala Ile Thr Ala Met Ser Glu Ala Gln Lys Val Ala Lys Pro Pro 245 250 255

Leu Ser Pro Gln Pro Pro Gln Val Leu Pro Leu Ala Ala Gly Gly Ala 260 265 270

Ala Thr Val Ala Ala Ala Ser Asp Val Arg Val Cys Arg Ser His Gly 275 280 285

Thr Leu Gln Asp Ala Cys Leu Leu Arg Cys Arg Gly Gly Cys Gln Pro 290 295 300

Val Val Trp Arg Gly Gly Ser His Arg Ala Arg Gly Gly Tyr Lys Val 305 310 315 320

<210> 212

<211> 313

<212> PRT

<213> Hordeum vulgare

<400> 212

Met Ala Asn Ser Gly Arg Glu His Ser Ala Val Pro Arg Arg Asn 1 5 10 15

Leu Val Ala Leu Val Pro Arg His Gly Cys Tyr Ala Glu Phe Ser Leu 20 25 30

Tyr Val Cys Val Gly Asn Ile Asn Ala Pro Phe Pro Val Phe Asn Arg 35 40 45

Thr Thr Phe Ile Ala Asn Ala Gly Ile Glu Ala Glu Leu Glu Pro His 50 55 60

Phe Leu Leu Leu Leu Phe Thr Phe Ser Ser Ser Ser Phe Phe Thr 65 70 75 80

Leu Leu Lys Thr Met Ile His Phe Thr Asp Arg Ser Asp Asn Lys Asn 85 90 95

Lys Ala Met Met Arg Gly Arg Glu Phe Arg Lys Ala Phe Ala Glu Val 100 105 110

Leu Lys Gly Ala Ala Thr Gly Gln Ile Ala Gly Gln Ser Ser Met 115 120 125

Ala Lys Leu Ser Ser Ser Leu Glu Leu Ser Tyr Lys Leu Ala Tyr Asp

130 135 140

Lys Ala Gln Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala 145 150 155 160

Thr Leu Thr Glu Ser Leu Arg Val Ile Ser Gly Thr Leu Glu Val His
165 170 175

Ser Val Lys Pro Ala Ala Glu Glu Val Lys Gly Val Pro Ala Gly Glu 180 185 190

Leu Lys Ala Ile Asp Gln Val Asp Ala Ala Phe Arg Thr Ala Ala Thr 195 200 205

Ala Ala Asp Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ser 210 215 220

Leu Gln Gln Gly Pro Ser Arg Lys Pro Arg Gly Gly Ala Tyr Glu Ser 225 230 235 240

Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala 245 250 255

Ala Thr Val Ala Ala Ala Pro Glu Val Lys Phe Thr Val Phe Gln Thr 260 265 270

Ala Leu Ser Lys Ala Ile Asn Ala Met Thr Gln Ala Gln Lys Val Ala 275 280 285

Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Val Ala Gly Ala 290 295 300

Ala Ala Thr Ala Gly Asn Tyr Lys Val 305 310

<210> 213

<211> 179

<212> PRT

<213> Hordeum vulgare

<400> 213

Leu Glu Leu Ser Tyr Lys Leu Ala Tyr Asp Lys Ala Gln Gly Ala Thr 1 5 10 15

Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Thr Glu Ser Leu 20 25 30

Arg Val Ile Ser Gly Thr Leu Glu Val His Ser Val Lys Pro Ala Ala 35 40 45

Glu Glu Val Lys Gly Val Pro Ala Gly Glu Leu Lys Ala Ile Asp Gln 50 55 60

Val Asp Ala Ala Phe Arg Thr Ala Ala Thr Ala Ala Asp Ala Ala Pro 65 70 75 80

Ala Asn Asp Lys Phe Thr Val Phe Glu Ser Leu Gln Gln Gly Pro Ser 85 90 95

Arg Lys Pro Arg Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala 100 105 110

Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala 115 120 125

Pro Glu Val Lys Phe Thr Val Phe Gln Thr Ala Leu Ser Lys Ala Ile 130 135 140

Asn Ala Met Thr Gln Ala Gln Lys Val Ala Lys Pro Ala Ala Ala Ala 145 150 155 160

Thr Ala Thr Ala Thr Val Ala Ala Gly Ala Ala Ala Thr Ala Gly Asn 165 170 175

Tyr Lys Val

<210> 214

<211> 210

<212> PRT

<213> Vespula vulgaris

<220>

<221> MISC\_FEATURE

<222> (1)..(210)

<223> where X is any amino acid

<400> 214

Xaa Xaa Glu Ala Glu Phe Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys 1 5 10 15

Gly Gly Val His Thr Ala Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys 20 25 30

Gly Asn Lys Val Val Val Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln 35 40 45

Asp Ile Leu Lys Glu His Asn Asp Phe Arg Gln Lys Ile Ala Arg Gly 50 55 60

Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Asn Met 65 70 75 80

Lys Asn Leu Val Trp Asn Asp Glu Leu Ala Tyr Val Ala Gln Val Trp 85 90 95

Ala Asn Gln Cys Gln Tyr Gly His Asp Thr Cys Arg Asp Val Ala Lys
100 105 110

Tyr Gln Val Gly Gln Asn Val Ala Leu Thr Gly Ser Thr Ala Ala Lys 115 120 125

Tyr Asp Asp Pro Val Lys Leu Val Lys Met Trp Glu Asp Glu Val Lys 130 135 140

Asp Tyr Asn Pro Lys Lys Lys Phe Ser Gly Asn Asp Phe Leu Lys Thr 145 150 155 160

Gly His Tyr Thr Gln Met Val Trp Ala Asn Thr Lys Glu Val Gly Cys 165 170 175

Gly Ser Ile Lys Tyr Ile Gln Glu Lys Trp His Lys His Tyr Leu Val 180 185 190

Cys Asn Tyr Gly Pro Ser Gly Asn Phe Lys Asn Glu Glu Leu Tyr Gln 195 200 205

Thr Lys 210

100

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<210> 215
  <211> 38
  <212> DNA
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  <220>
 <223> oligonucleotide primer
 <220>
 <221> CDS
 <222> (4)..(36)
 <223>
 <400> 215
 ccg ctc gag aaa aga aac aat tat tgt aaa ata aaa tg
    Leu Glu Lys Arg Asn Asn Tyr Cys Lys Ile Lys
                                                                      38
 <210> 216
 <211> 11
 <212> PRT
 <213> Artificial Sequence
 <220>
<223> oligonucleotide primer
<400> 216
Leu Glu Lys Arg Asn Asn Tyr Cys Lys Ile Lys
<210> 217
<211> 6
<212> PRT
<213> Artificial Sequence
<220>
<223> Kex2 cleavage site
<400> 217
Glu Ala Glu Ala Glu Phe
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